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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume LV
No. 1

New York, April 3, 1918

Ten cents a copy
Two dollars a year

Hundreds of Inquiries for the Miller Tire Survey Coming in from Tire Dealers

MILLER UNIFORM TIRE IDEA GETS IMMEDIATE RESPONSE

Up to the time that Miller first presented its story of Uniform Tires, tire advertising had been based largely on generalities and unsubstantiated claims.

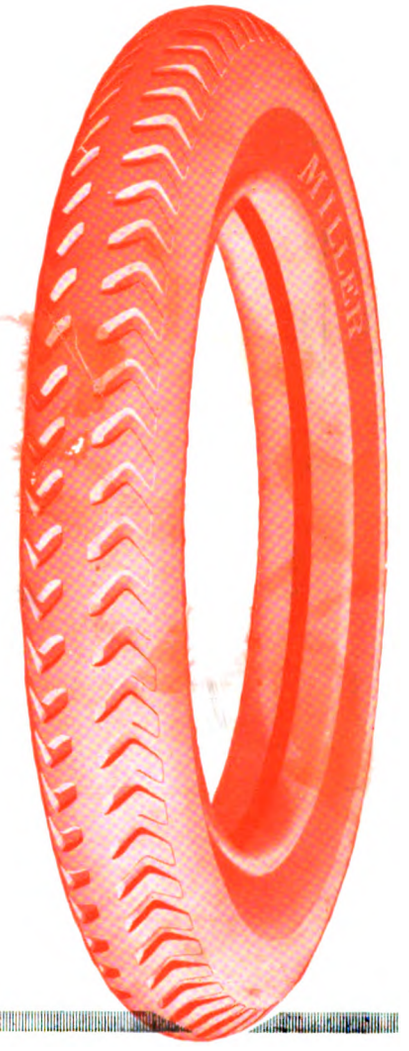
Manufacturers claimed for their tires many superiorities—yet few of them proved their claims.

They pictured to their dealers wonderful selling opportunities, yet but few gave figures to prove the success their dealers had had or told how they had been made.

The Miller Uniform Tire Book has changed all this.

We knew we had startling facts to tell. We knew just where our tires excelled and why.

But we did not tell our story until every claim we made could be proved a fact.



Miller UNIFORM MILEAGE Tires
GEARED-TO-THE-ROAD

How well Uniform Tires have proven out is best told by the wonderful response we have received from advertising these facts and from every dealer who had gotten one of our Uniform Tire Books.

Hundreds of inquiries for our agency proposition have already been received. Each day finds many more coming in.

The big tire investigation was conducted in every state in the Union. It occupied about three months, and is undoubtedly one of the largest trade researches ever made by a private concern.

If you have not received your copy and are interested in the facts Miller has to tell, send in your name today. This instructive book will be mailed you free.

MILLER RUBBER COMPANY
Dept. A-18. Akron, Ohio

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Advertisers' Index—Next to Last Page

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This UTILITY Universal Rim Wrench

Automatically Fits Every Demountable Rim Nut



New—Improved Price Still $1.50

This is absolutely the most convenient of all the wrenches for use with demountable rims, in the public or private garage, or for road-side rim changes.

It saves hours of time because without readjustment this one tool **automatically fits any nut on any demountable rim,** as well as many other nuts about cars that you have formerly had trouble to reach or turn.

Car Owners Buy It Fast

The early-season demand for the new UTILITY Universal Rim Wrench is a record breaker. It has already started to move from dealers' shelves.

Beautifully finished in nickel and black enamel, more compact and lighter, built with practically unbreakable jaws, shortened to go into the tool box without folding, absolutely rigid in action, it is a stronger brace than ever, that cannot close up or slip while in use by the operator. **A display sells it.** Show it to your trade for sales. **Use it in your garage or repair shop for profits.**

Order From Your Jobber Today. He has it.

Automatic Screw Machine Products Department
Theodore L. Dodd & Co.
Sales Representatives
80 E. Jackson Blvd., Chicago
Special Attention Given to Contract Work

HILL PUMP VALVE COMPANY

Archer Ave. and Canal St., Chicago

Eastern Sales Office: 149 Church Street, New York City
Western Sales Office: 149 New Montgomery St., San Francisco, California
Manufacturers of Famous UTILITY Protected Heaters for all Motor Cars

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MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

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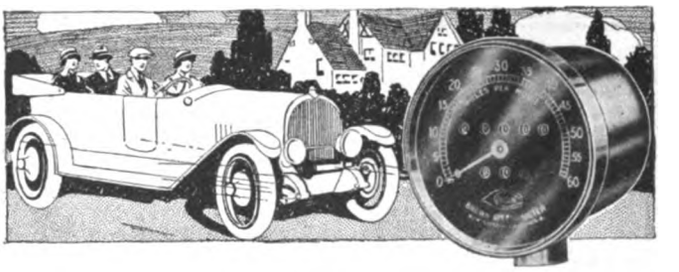
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Practical Reasons for Equipping the

CORBIN-BROWN SPEEDOMETER

Operating on the centrifugal principle, the Corbin-Brown is immune to electrical disturbances and is not affected by extreme temperatures.

Compound governors enable it to record accurately as low as two miles an hour. These governors also absorb all shocks so that the indicating hand remains steady.

The trip odometer is **below** the indicating hand. Its reading is not interfered with when the car is in motion. The season odometer is 100,000 miles, with automatic reset to zero when the limit is reached.

The Corbin-Brown can be connected to either right or left wheel or to the transmission. It records speed and mileage whether the car is moving forward or backward. In some other speedometers the indicating hand does not record any mileage when the car is moving backward, while the odometer subtracts mileage instead of adding it.

The Maximum Speed Hand, an extra feature, registers the highest speed attained and remains at that point until reset to zero, which can be done in an instant.

Equip the Corbin-Brown for 1918

Catalog on Request

Corbin Screw Corporation

THE AMERICAN HARDWARE CORPORATION
Successor

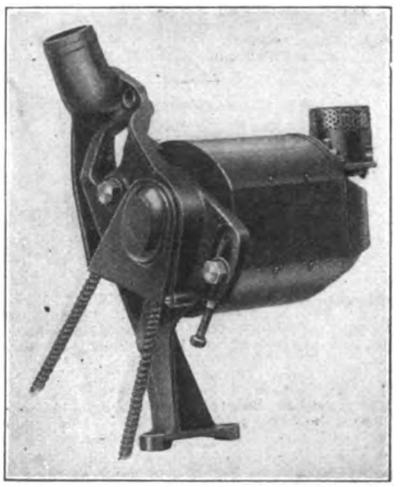
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BRANCHES: New York Chicago Philadelphia

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Easy to Sell—Easy to Install

There are thousands of Ford Owners that want an electric starting and lighting system. The demand is here. All you need to do is to explain the superior points of the General Electric Co.'s "Genemotor" and the sale is made. This has been proven in many *thousands* of cases.



Genemotor
Trade Mark

"It starts your Ford and Lights it too"

And when the sale is made you can install the Genemotor in a couple of hours with the simplest tools, for Genemotor is designed to be a *part* of the Ford itself. It will pay you handsomely to find out all about the Genemotor Agency for your town—write us now.

Built by the General Electric Co.
Price $90 F. O. B. Lynn, Mass. Sold Everywhere
Prest-O-Lite Battery Standard Equipment
Send for 1918 Genemotor Catalogue

A. J. PICARD & COMPANY, Inc.

General Distributor

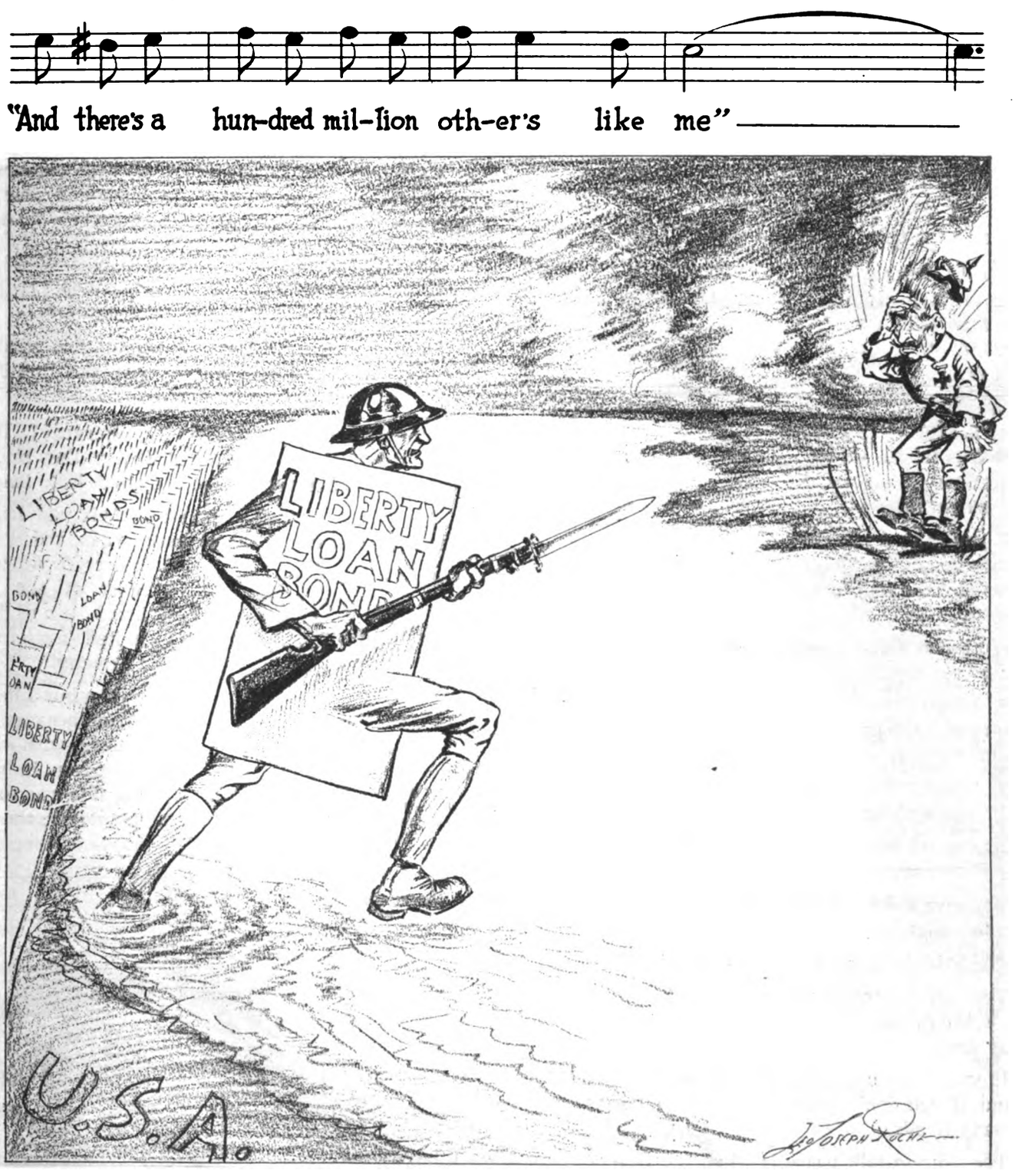
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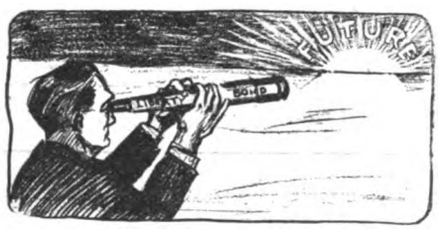
MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LV New York, U. S. A., Wednesday, April 3, 1918 No. 1



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50 Reasons Why You



A Liberty Bond gives you a look into the future, but defeat in the war will keep you tied to an unfortunate past

Just now, let your money talk in terms of Liberty Bonds.

Read This Page

Translate your good intentions into Liberty Bonds. Russia to-day is paved with good intentions—for the Germans to walk upon.

You buy Liberty Bonds because the man behind the gun is doing his bit, and you want to do yours. He cannot fight long without your help.

Germany has announced her eighth tyranny loan. We are offering our Third Liberty Loan. Can we allow ourselves to be outdone by Germany?

"When innocent blood from the four corners of the world cries out for justice," what will your answer be? Speak through the Third Liberty Loan.

IT is better to wear a Liberty Bond button on your coat than the print of the Kaiser's heel on your neck.

Liberty Bonds at $100 each are the credit of America laid out for you on the bargain counter.

The price of a Liberty Bond is $100. The price of defeat in the war is a lifetime of servitude to German interests.



Every Liberty Bond you buy is a safe financial investment in the future happiness and self-respect of your children. Buy as many as you can and let them inherit as good a country as you did

If you can't go to the front yourself, put your name on your money and send it. A Liberty Bond does it.

A Liberty Bond is a profit-sharing certificate on the prosperity of America.

A Liberty Bond will pay you interest on the future of America. Defeat will make you pay compound interest on the future of Germany.

A Liberty Bond is an old-age insurance policy, fully paid and non-assessable.

You must buy or pay—buy a Liberty Bond or pay Germany.

The Liberty Bonds you buy out of savings are anchors to windward. Ill fortune finds you prepared, for your bonds are as good as cash.

Liberty without Liberty Bonds is the kind in which the Kaiser specializes. Ask the Russians. They know from tragic experience.

Where are the spendthrifts of yesteryear? Buying Liberty Bonds. The air of liberty, they find, is better than champagne, and the effect lasts longer.

Our Allies keep on supporting their war loans; Americans will not hang back when the Third Liberty Loan calls. Most of the civilized world is united against Germany.



The campaign for the Third Liberty Loan is a spring drive in which every American is summoned over the top. And let us all be shock troops

You buy Liberty Bonds because you believe, with every American, in backing this war to the last dollar, the last ounce of energy.

You owe a debt of Freedom to America. Buy a Liberty Bond and pay the debt.

The $100 Bond is the cornerstone of Liberty.

You buy Liberty Bonds because they help to arm, outfit and feed the soldiers and sailors who are fighting democracy's battle under your flag.

If you don't believe in the premature peace that the pacifists demand, if you don't want to see the United States "Russianized," buy Liberty Bonds.

The time to talk peace is when the Germans lay down their arms.



It's either the "mon" or the Hun

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Must Buy Liberty Bonds

And Read This Page

Our boys in France are as anxious as the Germans to know whether you have bought your Third Liberty Loan. Which will you disappoint?

The American citizen should buy Liberty Bonds, because they are for the purpose of defending his country and his home.

The American citizen should buy Liberty Bonds because the men we have sent into the perils of the trenches have a right to our support.

The American citizen should buy Liberty Bonds because they are the means by which the United States is keeping its faith with its Allies in the war.

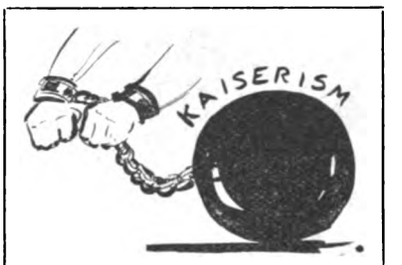


Conscription limits the age of the fighting man to thirty years, but there is no age limit for buying Liberty Bonds

The American citizen should buy Liberty Bonds because they will give the Government the means to bring the war to an early close and to put an end to suffering and slaughter.

The American citizen should buy Liberty Bonds because they represent to-day the highest form in which a citizen can perform his duty to his country.

The American citizen should buy Liberty Bonds because they are the bulwark of defense, keeping from the women and children of America the horrors which Germany visited upon the women and children of Belgium.



Uncle Sam is offering you one kind of bonds, and the Kaiser another. The Kaiser's don't fit Americans of the breed of Washington, Lincoln, and Wilson

Three periods urge purchasing Liberty Bonds: Past, for the gift of democracy; Present, for our boys in France; Future, for the safety of the world.

The hope of the child, the desire of the woman, the determination of the man, are the objects Liberty Bonds will buy.

You must buy a Liberty Bond to preserve your self-respect, to still your conscience, and to prove your patriotism.

Two reasons for purchasing Liberty Bonds are: To show that you are a wise business man; to prove that you appreciate your country's ideals.



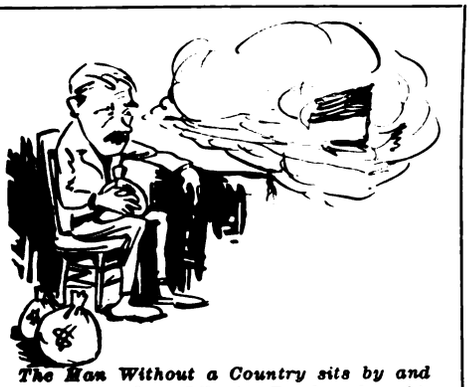
That man in khaki, to whom you wished "best o' luck," wants you to buy Liberty Bonds and show you meant what you said

Purchasing a Liberty Bond will mean helping insure these United States against depredatory powers for ages to come.

Each of us should buy Liberty Bonds to assume at least part of the individual responsibility which the war imposes on the nation as a whole.

Because those who have enlisted set an example of sacrifice, knowing that Liberty would be won by the small sacrifices made by those who remained behind.

Because by buying now we are helping self and helping country. If a Liberty Bond increases, they are increased that buy them.



The Man Without a Country sits by and refuses to buy Liberty Bonds when his flag is flying somewhere in France—but he is lonesome

Do you want German Kultur forced down your throat on the end of a sword? You may get it, if the Hun wins this war. A Liberty Bond purchased is the best way to stop it.

Ask yourself what would be the financial attitude of Washington and Lincoln toward this war were they alive to-day. Do you think they would refuse to buy Liberty bonds?

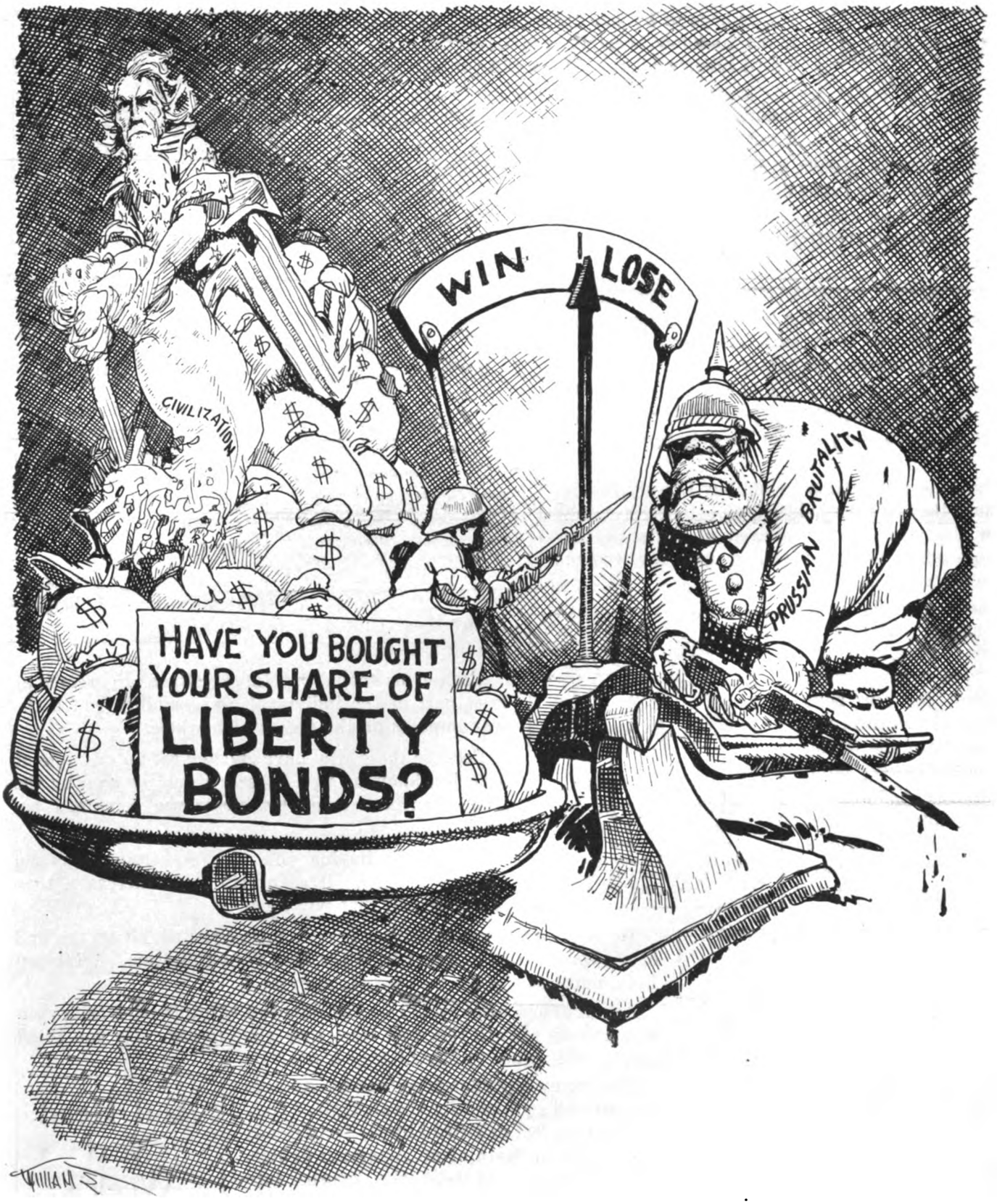
The enemy buys bonds so that his soldiers may be well equipped for the struggle. Your failure to invest in Third Liberty Loan Bonds may result in death of an American fighter.

Time enough to beat the swords into ploughshares after the Kaiser is beaten into submission. The Third Liberty Loan is an effective weapon against him.

And Read Next Week's Issue Too

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Add *Your* Weight—Buy Bonds



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BUY LIBERTY BONDS

Have YOU Started Yet

On the Campaign in the Trade in Your City for the

Third Liberty Loan ?

Here's What New York Is Doing

THE dealers of Greater New York held a meeting Friday, March 29. Charles M. Brown, president of the association in the Borough of Manhattan, was made chairman of the Liberty Loan in the Greater City.

John B. Elsey, president of the Bronx association, was made chairman in the Bronx.

Arthur Randall, president of the Brooklyn association, was made chairman in the boroughs of Kings and Queens.

The Borough of Richmond, which is Staten Island, will be handled from Manhattan.

Headquarters are to be at the office of Manager Charles A. Stewart in the Woodward Hotel.

Stewart is to institute a bulletin service.

Individual dealers are to canvass their own organizations.

Any dealer who needs assistance will be supplied with speakers and canvassers from the association head quarters.

The work is to start intensively Saturday, April 6.

It will not end until the LAST DAY, Saturday, April 27.

The New York trade bought $5,448,100 of bonds on the Second Loan. It will try to beat this mark by SOME.

Other Cities Are Lining Up—Are You ?

From other cities come reports that the work will be started with a push during the present week, so that everything will be in fine working order by April 6, the day the big drive begins.

Atlanta is going to have a big parade April 6. Hopes are high.

Next week we shall tell what various cities are doing. Send your story in now, no matter if you are just getting started. Give it to us NOW so it can appear in next week's issue of Motor World.

Use the Plan

Last week in Motor World on pages 12 and 13 was printed a plan for organizing a city's trade for the Liberty Loan. If you haven't a better plan use this one.

On pages 12 and 13 in the issue of March 20 were printed questions and answers in simple language, telling what a bond is and why it should be bought. Read these pages to your organization.

This week on preceding pages are many reasons why you should buy Liberty Bonds. Read these to your organization.

Get Publicity

Let the newspapers know what the trade in your city is doing. Don't hide your light under a bushel. The more publicity you can give to your work the better the work will go.

Issue bulletins through your own trade.

Run a thermometer. Mail one every day to firms in the trade.

Remember This

The campaign runs three weeks—then stops. And old Kaiser Bill is sitting safely back of the lines in France watching YOU. A big over-subscription of the loan is a bigger reverse for Germany than the loss of miles of territory.

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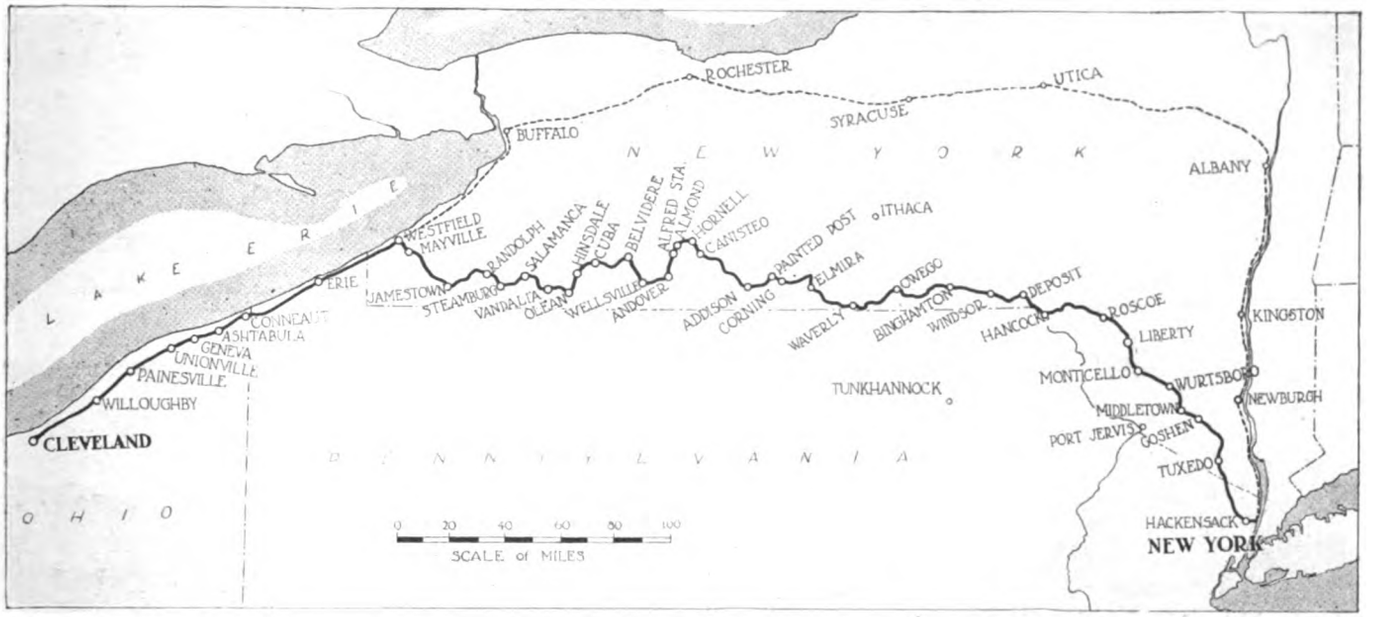
Soak the Kaiser—Buy Bonds



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The Best Drive-Away Route Between Cleveland and New York

It Has Only 25 Miles of Road Not Thoroughly Modern, Is 587 Miles Long and Has Plenty of Hotels and Garages



NEW YORK, April 1—A new drive-away route between Cleveland and New York has been mapped out. It is the best drive-away route between these two points and other Western points contiguous to Cleveland. It is 80 miles shorter than the usual Mohawk valley route, only 30 miles longer than the route by way of Pittsburgh and Philadelphia, and in its entire length of 587 miles there are less than 25 miles which are not of thoroughly modern construction.

The new route was mapped out by R. H. Johnston, manager of the New York Branch of the White Co., because of necessity. With both cars and trucks scheduled for delivery over the roads, and both the Mohawk and Pittsburgh-Philadelphia routes found by personal inspection and investigation to be in a condition too bad to permit extensive drive-aways, another route had to be found.

With the exception of a few stretches of bad roads here and there and in the outskirts of a few of the towns in the gaps between state roads and paved streets, the entire route is over excellent highways.

The greater part of the new route between Fort Lee Ferry, New York City and Westfield is over fine state roads, many of which are so new and have been subjected to so little traffic that they are absolutely flawless.

Owing partly to the spirit of the times, and because the road from New York toward Cleveland leads toward and through Liberty, N. Y., Johnston has christened the new route the "Liberty Highway."

Most of the way the route follows the several valleys which distinguish the Southern Tier counties. The road winds picturesquely through these valleys, following the meanderings of the water courses. At Suffern, N. Y., just over the New Jersey line, the "Liberty Highway" meets the Ramapo River and runs with it past Tuxedo Park to Harriman. Here the road strikes off sharply to the west and mounts ever higher and higher, by easy grades, through Goshen, Middleton and Wurtsboro to Liberty.

Just beyond Liberty, the descent begins into the basin drained by the Delaware River. First the road runs side by side with Little Beaver Kill, then with Beaver Kill, as far as Hancock, whence the road parallels the Delaware River to Deposit.

Along Beaver Kill and the Delaware River Johnston found numerous places where the adjacent hillsides were showing a tendency to slide down over the road. Strong concrete retaining walls have been built along this road for miles at a stretch, but when a hill-side starts to move, the retaining walls can do little to hold it back. Fortunately, there are road-gangs constantly patrolling the roads and, as soon as one of these miniature land-slides occurs, the road is quickly cleared.

From Deposit the road mounts over the hills and, after crossing the Susquehanna River at Windsor, meets this lazy stream again at Binghamton and follows it almost to Waverly. Beyond Waverly, the road courses along the banks of the Chemung River past Elmira and Corning through Addison. Here the road again strikes over the mountains and descends to the valley of the Canisteo River a few miles from Hornell.

From that city, the road goes cross-country to Wellsville, where it meets the gentle Genesee. This river is left sharply behind at Belvidere from which the road leads through a beautiful valley through Cuba and Hinsdale to Olean.

Then comes that perfect, almost unused road following the course of the Allegheny River through Vandalia to Salamanca. This river is followed still further to Red House, whence the road again goes over the hills, so that the next body of water is Lake Chautauqua at Jamestown. Skirting this lake for 20 miles, the road leaves it at Mayville and drops several hundred feet in the next 6 miles to Westfield on the shores of Lake Erie.

At Westfield, the scenic part of the Liberty Highway is at an end. Here, too, is almost the end of the modern im-

(*Continued on page* 15)

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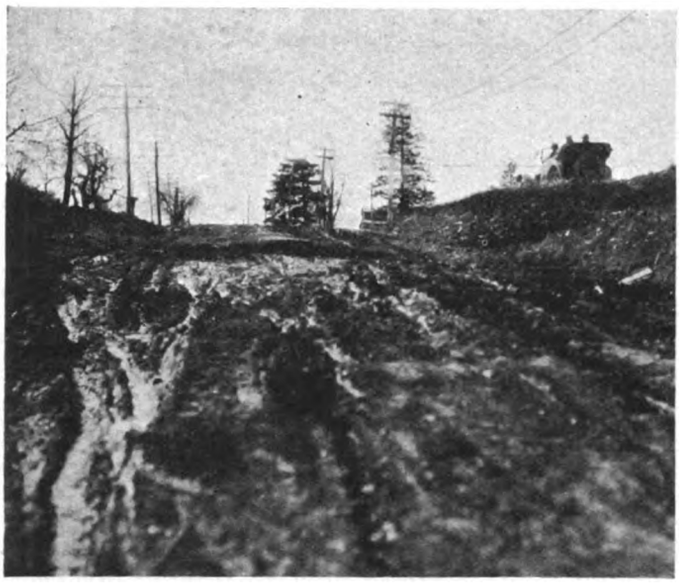
Movie of Best Drive-Away Route



A stretch of new concrete road near Unionville, Ohio



Where the concrete road leads through Jamestown



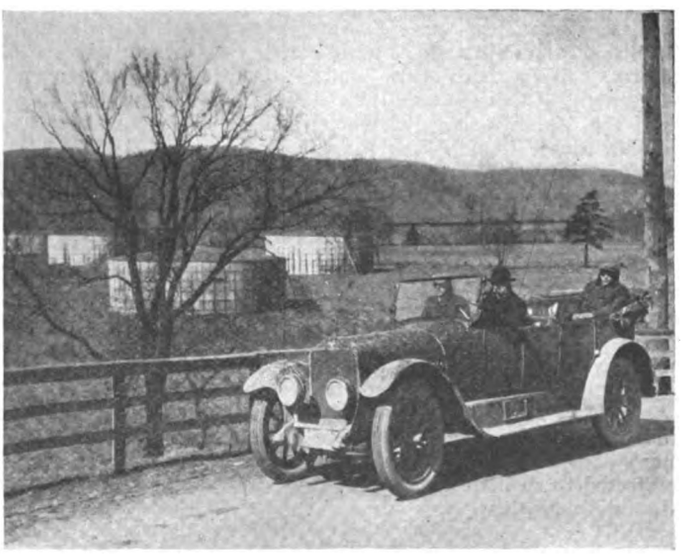
Stretch of muddy road on the outskirts of Erie



Back on the good road at Randolph



Near Erie there is a short detour through a cornfield



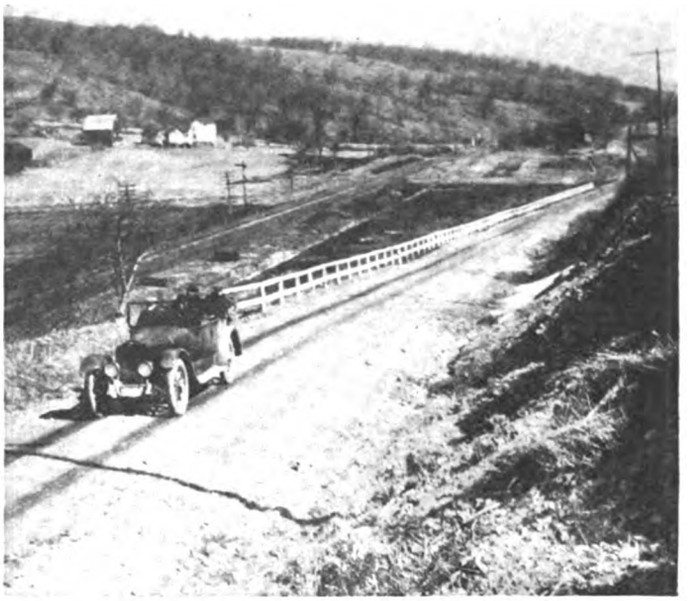
Stretch leading into Olean

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Between Cleveland and New York



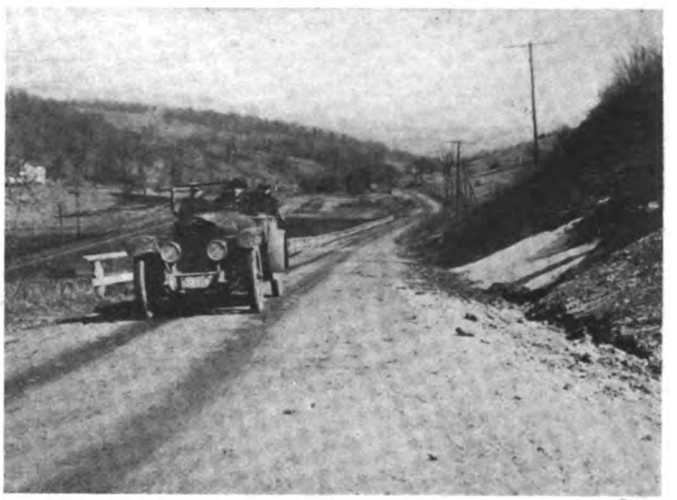
A good stretch between Salamanca and Olean



On the road between Hornell and Wellsville



One of the few stretches of unimproved road



Another view on the Hornell-Wellsville road



In the valley between Belvidere and Cuba



Concrete road through Big Flats near Elmira

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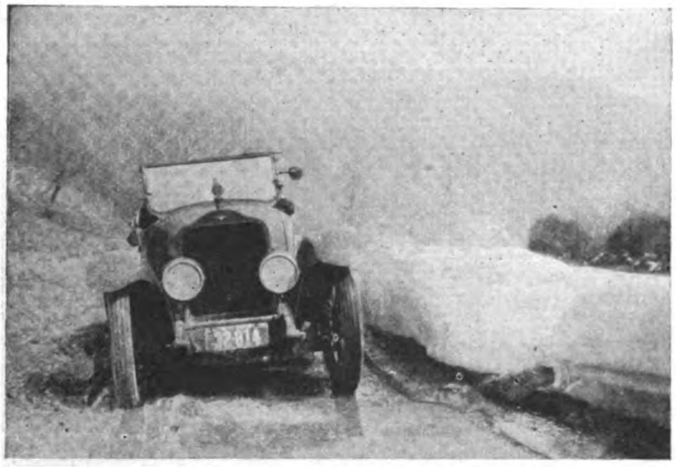
Movie of Best Drive-Away Route



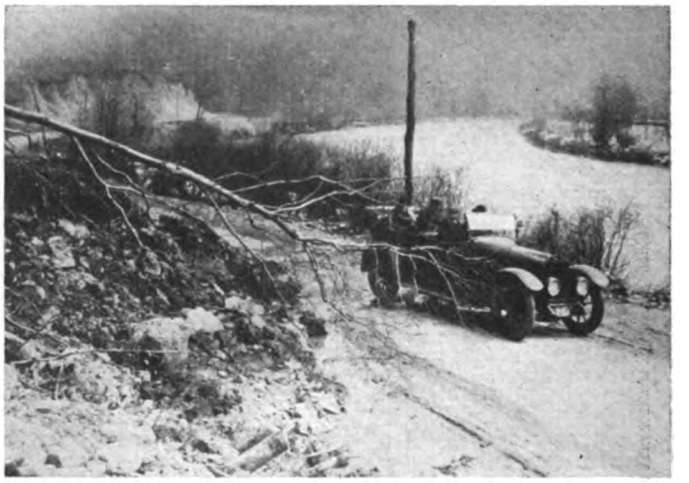
Following the Susquehanna River on the road to Binghamton



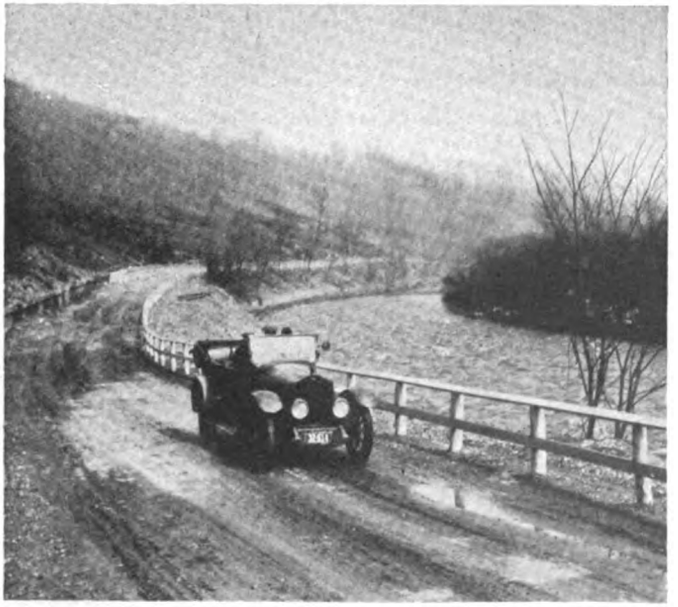
One of the landslides near Hancock



Ice deposits on the road near Hale Eddy, New York



Another landslide near Roscoe



Following Beaver Kill to Horton



Near Liberty there are still piles of snow

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Between Cleveland and New York



Starting the climb near Monticello



Near Goshen, New York, the highway is perfect



A perfect stretch of road near Middletown



But near Conneaut the road is not so good

(*Continued from page* 11)

proved roads. New York State thought it wise to build a fine highway from its southeast corner to Westfield, but it did not think it worth while to build to the Pennsylvania State line.

Similarly, Pennsylvania did not think it worth while to connect up the New York State line with the Ohio State line. Ohio, in turn, did not go further east than Ashtabula with its good road system. Thus it happens that, between Westfield and Ashtabula, the road has not been systematically improved.

The war-time urgency has resulted in some belated attempts to put this road in condition, but this part of the road is still the poorest link of the great Liberty Highway. From Ashtabula to Cleveland the roads are splendid.

An idea of the generally fine condition of the Liberty Highway may be obtained from the schedule which was followed in Johnston's recent exploring trip. He made Elmira from New York the first day, Erie on the second day, and drove from Erie to Cleveland on the morning of the third day. In other words, a driver may safely figure on a schedule of 250 miles per day. In fact, a touring party which keeps going could easily cover the route in 2 days, in which case Hornell would be the logical night's stopping place. Those driving trucks over the road should be able to maintain a schedule of approximately 100 miles per day.

Johnston has immediately commenced driving new cars and trucks over this route from Cleveland to New York. He strongly recommends that dealers send at least part of their drive-away parties over the new Liberty Highway. Even if there were no other reasons, the overcrowded condition of the hotels, garages, and even the roads of the Mohawk Valley and the Lincoln Highway routes make it advisable that a third highway should share the ever-increasing drive-away traffic.

The Liberty Highway is well provided with both hotels and garages and, as for the roads, they are practically bare of traffic.

Soldiers' Families Taken to Camp

NEW YORK, April 1—Fifty-eight motor cars were donated to the A. A. A. yesterday by residents of New York to carry soldiers' families to Camp Upton. The club provided tickets to the Motor Parkway, so that the cars could make the trip of 78 miles to the camp in quick time.

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FOURTH INSTALMENT IN A SERIES OF SIX STORIES

The Street Without a Name

By Ray W. Sherman

MILLER, the Sennett dealer in Merrylton, was having trouble getting started with his 1918 business. He had a fine territory with all sorts of prosperous farmers, but he never had seemed able to get out of this the profits that he was entitled to.

Reilly, the Sennett distributer in Callawassa, insisted that Miller come down once in a while and talk to him, and every so often Reilly went down and talked to Miller. This time Reilly was down talking to Miller.

"Have you sold your year's allotment of cars yet?" laughed Reilly.

"Well, hardly," smiled Miller, "but I do think I'm getting a start. I got that prospect list you told me about fixed up and I put new windows i and next week the carpenter is coming to build that accessory display cabinet you told me about."

A Ray of Light

"That's fine!" enthused Reilly. "It begins to look as though we were going to get somewhere. If we keep it up at this pace I think we ought to make some money this year. What do you say?"

"Looks good to me," said Miller, who displayed more enthusiasm than he had had in his system for the past ten years.

"What are you going to do?" asked Reilly. "Are you getting some of these things started and paving the way for the sale of a lot of stuff this summer?"

"Yes, I am getting my prospect file ready and I figure to go out and get quite a lot of business."

"What about your advertising?" asked Reilly, glancing over the plans that Miller had drawn for his summer business.

"I haven't figured on much advertising," said Miller. "You see the papers here are small and they don't amount to a great deal and your papers down in Callawassa cover this country pretty well. I figured that the advertising you were doing down there was going to be quite a lot of benefit to me."

"Aren't you going to do any advertising in your own papers?"

"No, I haven't figured that I would. I sort of thought it would be a rather useless expense and I want to keep expenses down as low as possible. You know that's one of the things you told me to do—to cut out all the waste I could—and I figured that this advertising was going to be pretty much waste."

"I don't think you're quite right on that," said Reilly. "I think you ought to spend some money in your local papers advertising your business."

"Maybe you're right," said Miller. "I'll think it over again and find out what the rates are and about what I can do. How much do you think I ought to spend?"

"Well," figured Reilly, "if you do anything at all this year, you ought to do at least $50,000 worth of business and inasmuch as it's going to be a hard year you probably have got to fight for what business you get, I should say you should spend about 1 per cent of this $50,000. That is, about $400. Maybe a little bit more and maybe a little bit less. It all depends on how things pan out, but I should say figure on about $300 for a starter to run through a good portion of the year and if it works as well as it ought to, add a little bit more to it."

"I'll try that," said Miller.

Local Advertising Valuable

"A lot of the country dealers that I have," continued Reilly, "pass up a good bet on this advertising in their local papers. They look upon their local papers as a sort of necessary nuisance and they don't take full advantage of them, but I think the local paper in the small country town is one of the greatest possibilities in advertising that there is to-day.

"This paper oftentimes goes out only once a week or twice a week, but it is read from cover to cover by every man in this part of the country. He gets the Callawassa paper for the news of the world, but when he gets his own home town paper he goes over it from beginning to end, reads all about who has built a new barn and all that sort of stuff and I believe your advertising there would receive an unusual amount of attention.

"You've got to advertise your goods, Miller, or you're not going to get your stuff across to its maximum possibilities in this territory. You can look over the dealers in this town and find those who advertise and those who don't and see the difference in the business they have done. The most successful man here is Smith, and he has been one of the heaviest advertisers in your local papers. I think you ought to do the same thing.

"The rates in this local paper aren't very high. You can get a lot of space for a small amount of money. You should give good displays and keep the name of yourself and the things you sell before the public so that when anyone says car they will think of Sennett cars, and when they think of Sennett cars they will think of you—and not of me. As it is, my advertising in the Callawassa papers is about the only thing that is coming into this territory, and when they think of Sennett they think of Reilly. This may make some of them want to come down to my town and do business with me, whereas if you keep your name before the public in the same way in your own local paper, they will think of you instead of me when they consider buying a car.

Advertising Is Like a Well-Known Street

"My newspaper advertising has been one of the biggest helps I have had in building my business. I have spent money for advertising when there has been doubt in my mind as to whether it would bring in a good return. Despite that I have tried to make my advertising such that it would pull results. I have paid a lot of attention to it and spent a lot of time on it. I have tried to get as large a personal element into it as possible and bring myself in close touch with the car-buying people in my town.

"Advertising is just like a well known street. It brings people to you. If you had two streets and on the corner of one was a sign which said that the street went somewhere and there was no sign on the other street, most of the people would go down the street to which the sign pointed.

"It is a peculiar thing how people will act under the force of suggestion. If you make a suggestion people are likely to follow it, whereas if left to their own devices there is no telling where they will go. You should get the way to your store so well posted with advertising that whenever people think of buying a car selling for about $1500, they will think of your car, and when they think of your car they will know right away

(*Continued on page* 44)

OTHERS *in this* SERIES

1—The Man Who Was a Slacker

2—The Horse Without a Rider

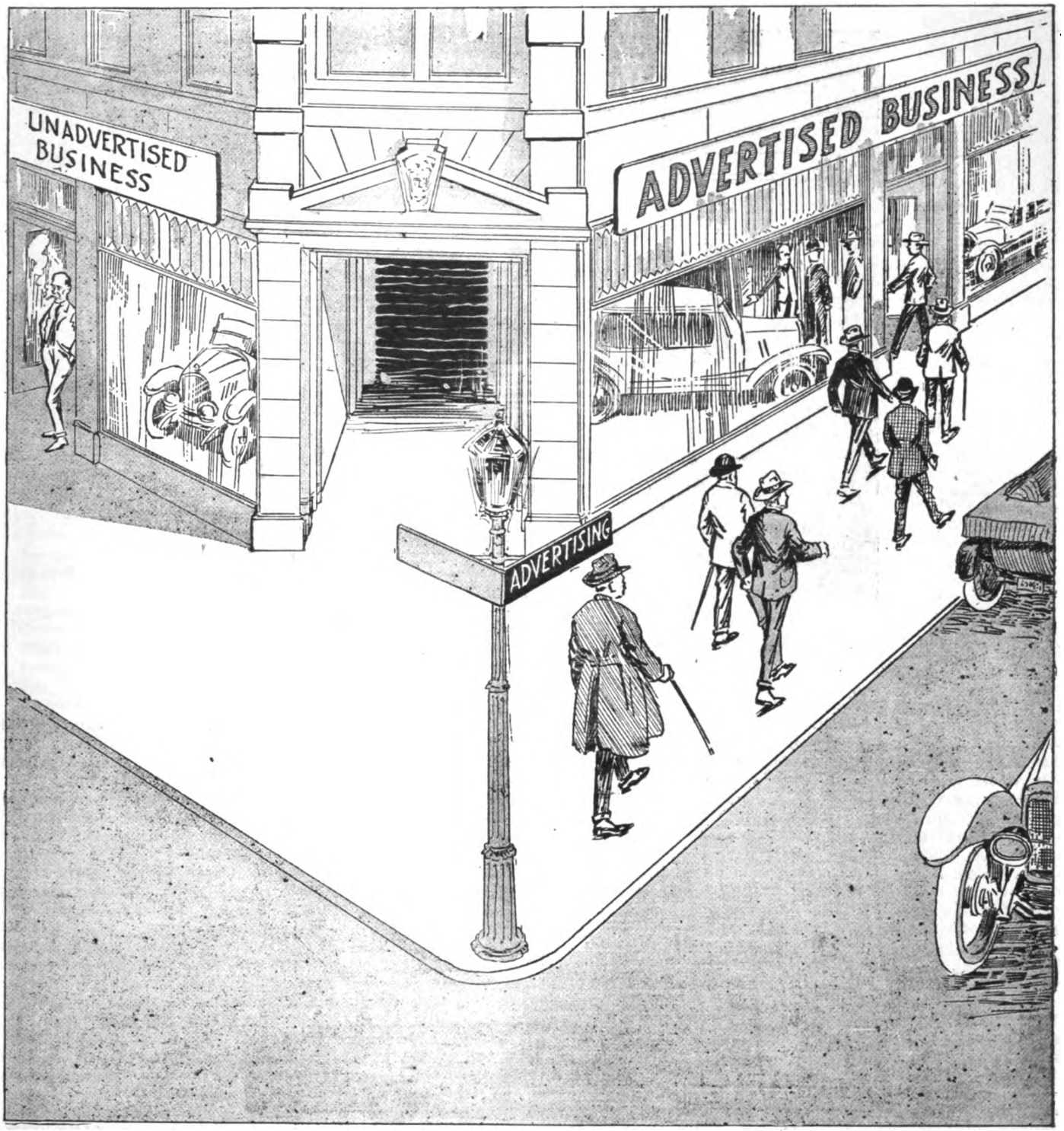
3—The Locked Door

5—Ghosts That Are Unemployed

6—The Invisible Ink

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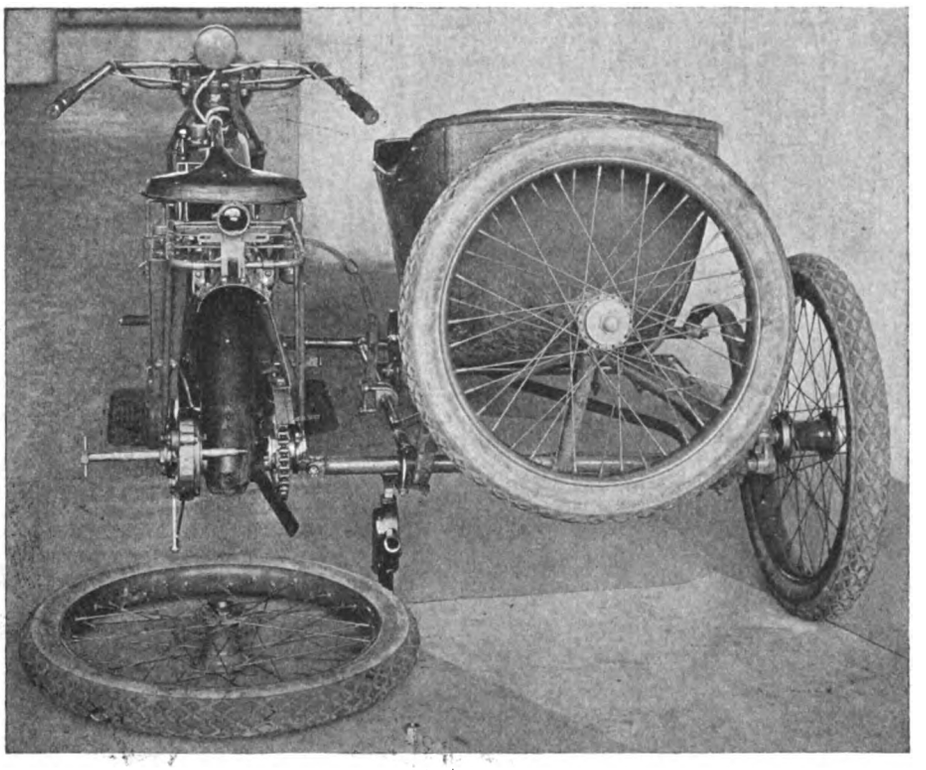
The Street Called Advertising



"Advertising is just like a well-known street. It brings people to you. If you live on the street called 'Advertising,' there are always a lot of people going by your door; but if you're on an unknown street you are out of the limelight and out of the thoughts of the people who buy."

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Quick Demountable, Interchangeable Wheel for Liberty Motorcycle



The wheel used with the new Liberty motorcycle is a quick demountable type and is interchangeable and can be used for front, rear or side car

THE most novel feature of the U. S. A. motorcycle that has been developed by the Quartermaster Corps is a demountable wheel which makes it possible to replace a damaged wheel in less than a minute. Heretofore demountable wheels have been used only on passenger cars, but the fact that motorcycle wheels are often damaged in service at the front made it seem desirable to develop a demountable wheel for this work. A spare wheel is to be carried on the side car, and this will take the place of either the driving wheel, the front wheel or the side-car wheel.

The chief problem in connection with the design of such a demountable wheel is, of course, to provide means for the transmission of the driving and braking effort to it. How this has been accomplished in the U. S. A. motorcycle demountable wheel may be seen from the sectional view of the rear wheel hub herewith. It may be pointed out in this connection that all of the bearings used on the wheels of the motorcycle are annular ball bearings, which also denotes a new departure in motorcycle construction, at least so far as American practice is concerned.

There are essentially three parts to the rear hub construction, viz., the central part, which forms part of the wheel; the left-hand part, which carries the driving sprocket wheel and is supported in the left-hand prong of the rear fork, and the right-hand part, which carries the brake drum and is supported in the right-hand prong of the rear fork. The central part consists of the outer hub shell *A* mounted on two annular bearings on the sleeve *B*. The hub shell *A* has an inward flange at one end, and a ring nut is screwed into it at the other end. The flange and ring nut are cut with grooves for felt packing, so as to keep dust out of the ball bearings and retain the lubricant in them. It will be seen that the ball bearings at the right-hand end of the hub shell have both the inner and the outer race clamped tight and therefore will take any thrust loads, whereas the outer race of the left-hand bearing is free in the shell.

Each of the side members of the hub construction also consists of an outer shell and an inner sleeve. In the case of the left-hand part the shell is supported on the sleeve by two adjacent ball bearings, while the right-hand part has only one ball bearing. Attention may be called to the provision of felt packing wherever there is a chance for dust and grit to work into the interior of the hub.

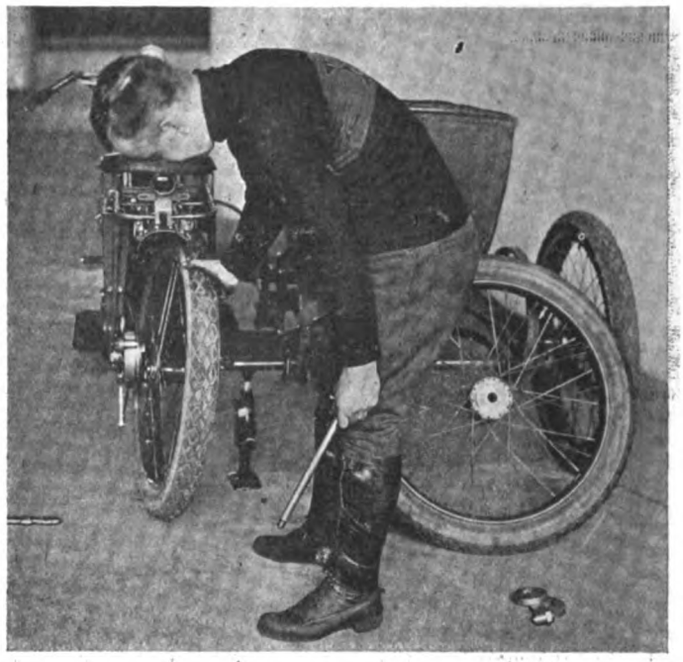
The driving connection between the central member of the hub construction and the two outer members is similar to that of a Hookham joint. The central member is formed with a tongue transversely across its face at each end, and each of the outer members is formed with a corresponding groove. To prevent incorrect assembly the driving members on opposite ends of the hub are different in form. The whole assembly is held together by means of the central bolt *C*. When this bolt is removed, the central part of the hub construction can be drawn laterally from the two end parts. There is a cross-pin through the head of the bolt to facilitate the removal of same.

In order to make it possible to withdraw the wheel from the rear fork, it was necessary to hinge the rear portion of the mud guard. If a wheel becomes damaged and the rider wants to replace it with his spare wheel, the first thing he does, if it happens to be the rear wheel, is to drop the stand to raise the machine off the ground. Then he unscrews the

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nut from the rear hub bolt. The wheel then drops out of its own accord. It is then replaced by the spare wheel, the bolt is replaced and the stand raised to let the wheel down to the ground. The various operations are illustrated by the accompanying photographs and drawing.

Aside from the hub construction, the new wheel corresponds to the standards adopted by the S. A. E. It is 28 in. in diameter and fitted with a 3-in. tire on a CC clincher rim. There are forty spokes, and these are so laced that there are four crossings. The spoke has a maximum diameter of 0.148 in., and the diameter of the swaged part is 0.120 in. Spokes are made of carbon steel containing from 0.40 to 0.55 per cent of carbon and having a tensile strength of not less than 140,000 lb. per square inch. Each complete spoke and nipple must be capable of sustaining a dead load of not less than 1580 lb.



A spare wheel is carried at the back of the Liberty motorcycle and can be used in place of any other that may be damaged. This shows how easily the rear wheel may be removed. Less than one minute is required to replace a wheel

Advertising a War-Time Expense

March 28—The British War Government recognizes advertising as a necessary expense even in the cases of those firms which now are engaged almost entirely in the manufacture of munitions.

The British Ministry of Munitions has recently made a statement in the *Manchester Guardian* regarding advertising, in which it states that no arbitrary rule has been made in reference to the advertising expenses of those establishments which, as the Government expresses it, "are controlled." The statement follows:

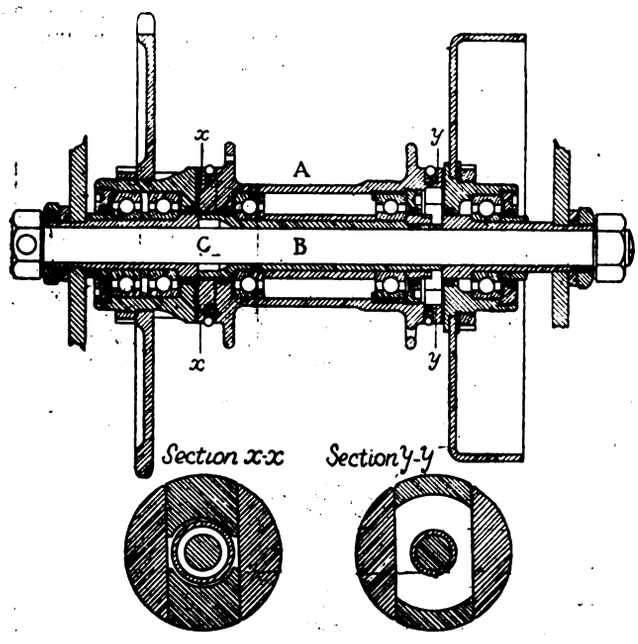
"In dealing with such establishments for the purpose of munitions levy, it has been the practice of the Ministry to make full allowance for advertising on a pre-war basis; and while it is possible that cases may arise in connection with contracts with the Ministry in which advertising charges would have to be more or less disregarded, owing to the particular contract basis, such charges are in general treated as part of the legitimate establishment charges of the firm. All such cases are dealt with separately on their merits."

Sterling Trucks Go Overland

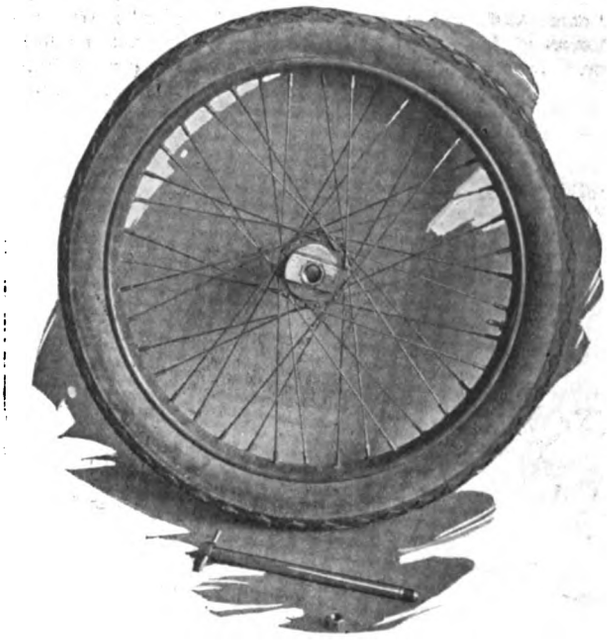
MILWAUKEE, March 28—The Sterling Motor Truck Co. last week sent a fleet of eleven Sterling trucks overland to Baltimore, for delivery to the Calvert Motor Truck Co., distributer. The fleet was accompanied by M. R. Curriden, sales manager of the Calvert company. The distance is about 1000 miles, and it was figured to cover the route in 8 or 9 days. The H. Kliensbans Co., Pittsburgh, recently drove two 5-ton Sterlings overland from Milwaukee in six days, covering about 700 miles. A fleet of 2½ and 3½-ton Sterlings will be forwarded to the same distributer in the same manner at the end of this week.

To Make Kerosene Carbureter

DETROIT, March 28—The Kerosene Equipment Co. will take over the Detroit Kerosene Carburetor Co., and will establish a factory in Detroit to manufacture kerosene carbureters and kerosene products. E. E. Schwarzkopf, president and treasurer, and J. W. Racklyest, vice-president, of the Detroit Kerosene Carburetor Co., will head the new company in the same official capacity. The Kerosene Equipment Co. is being organized under the laws of Delaware, with a capitalization of $50,000, all common stock, issued without par value. Hartford capital is now behind the project.



Internal construction of the quick detachable, demountable Liberty motorcycle wheel



Appearance of the wheel itself, which is a rugged type, well able to stand the roughest usage

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A Department of

BETTER MECHANICS

No. 62

Installation of the Genemotor On the Ford

THE following instructions cover the installation of the Genemotor starting and lighting equipment for any standard Model "T" Ford car. The instructions do not cover the installation when the car has previously been fitted with accessories such as tire pumps, water pumps, special ignition, distributors, etc.

The Genemotor equipment is a single unit outfit, that is, one unit performs both functions of cranking the engine and charging the storage battery. The wiring is what is known as the two-wire system, and no fuses are used. The Genemotor is complete and includes all the outfit necessary to make the installation with the exception of the electric bulbs.

Preparation

Before dismantling the engine be sure that it is in good condition, running smoothly and the carbureter adjusted properly.

1. Drain and remove radiator and water connections.

2. Remove the starting crank and ratchet.

3. Remove fan bracket complete with fan and belt.

4. Remove fan drive pulley on the crankshaft.

5. Remove the engine bolts A shown in Fig. 1.

6. Clean and wipe engine carefully to insure perfect seating of parts.

Installation

1. Mount Genemotor supporting bracket on the side of the engine, using one or two of the ⅛-in. washers which are furnished for use between the bracket and engine as necessary. Gaskets should be used on each side of the bracket. Assemble front water connection and bolt *A*, Fig. 1, and also bolt bracket at water inlet temporarily.

2. Chisel off part of the two rear heads *G*, Fig. 2, in the nose pan of the engine and bend out the edge of the nose with a wrench to clear the chain, Fig. 3. Assemble the driving sprocket *C* on the crankshaft. Next lay the starting crank ratchet inside of fan pulley *D* with holes for pin in line and force the pulley inside the sprocket. Remove small screw *F* from the end of the pin *E* and drive pin home. Then expand the end of the pin by replacing the screw *F*, being especially careful to note that the end of the pin *E* is below the teeth of the sprocket.

3. Place the fan belt under pulley *D* and replace the starting crank and rivet to the ratchet.

4. Place the Genemotor in supporting cradle and clamp the strap over it loosely.

5. Feed the chain under sprocket *C* and rivet the ends together. Then pass the chain over the small pinion on the Genemotor and align by shifting the Genemotor backward and forward as necessary. The chain should be adjusted to give ⅜-in. deflection under ordinary finger pressure, and when this adjustment is completed the Genemotor should be clamped firmly in place.

6. Remove the fan shaft from the Ford fan and reassemble with the new fan furnished, first packing the fan body with bearing grease. Mount the fan on the engine and tighten the belt to the proper tension.

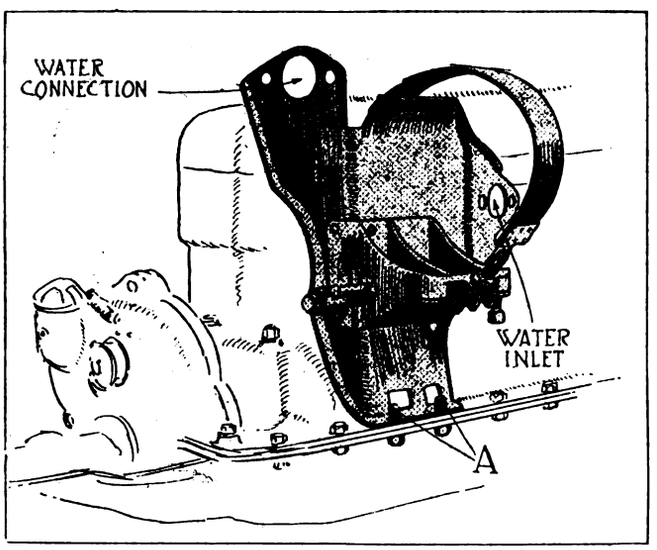


Fig. 1—Steel frame and cradle for supporting the Genemotor in position at left side of Ford engine

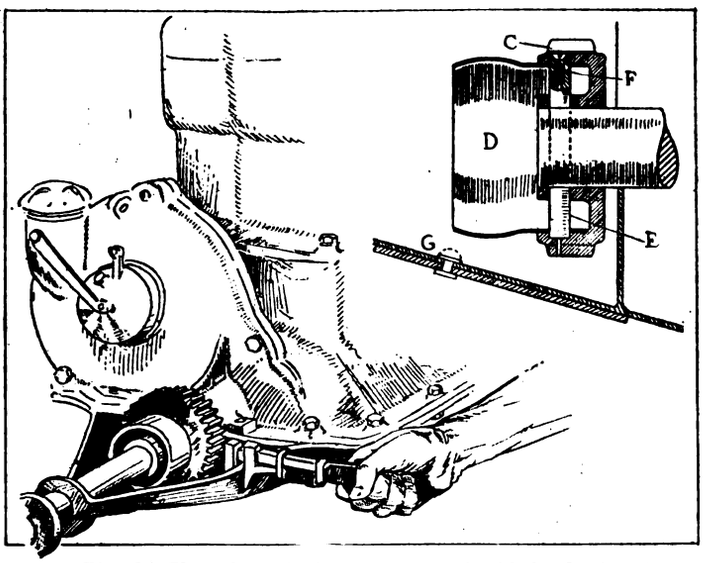


Fig. 2—The edge of the nose pan should be bent out slightly with a wrench to clear the chain. Fig. 3—Above—Method of fitting the new fan pulley

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7. Replace the radiator and water connections.

8. Attach the primer rod and lever furnished with the equipment as shown in Fig. 3.

9. Mount the starting switch and cutout under heel board as shown in accordance with the dimensions given in Fig. 4.

10. The battery box should be mounted on the left runningboard as shown in Fig. 5. Bend the fender with a heavy bar to form an opening between the body and the fender to allow battery cables to pass through. The lighting switch should be mounted on the steering column and cable attached to it clamped between the recess in the switch box and column. Wire up the head and tail lights with leads supplied in accordance with the wiring diagram, Fig. 6.

The Genemotor should be connected to the switch and cutout and a piece of circular loom should be slipped over each one of the main battery cables where they pass through between the body and fender. The leads should be securely fastened by the clamp on the outside of the battery box. Connect the negative battery cable.

Touch the positive terminal to the battery with all switches off. If no spark is noticed, no grounds exist in the wiring and the terminals should be connected permanently. The headlights should be fitted with 12-16 volt bulbs. The tail light should be fitted with proper adapter and a 12-16 volt bulb.

11. An ammeter is not regularly supplied as a part of the system, since charging is at all times assured through the inherent regulation of the single unit Genemotor equipment. Many owners, however, consider the addition of an ammeter a desirable feature for checking the system and it can be added by substituting wiring, as at *A*, Fig. 7, in place of lead 8.

12. Turn engine over by hand; and see that everything is clear. The starter and lights are now ready for use.

Maintenance

Put distilled water in the battery every 2 weeks. Grease the chain every 500 miles and keep it at the proper tension.

The ball bearings at each end of the Genemotor should be lubricated with a few drops of non-acid oil every 1000 miles. Never put oil or grease on the commutator.

If the commutator is rough or dirty clean with fine sandpaper only.

Never operate the Genemotor with the battery removed unless the two Genemotor terminals are first connected with copper wire or cable; otherwise the Genemotor will overheat and injure the windings.

Lights must not be used with the battery removed.

Never operate the Genemotor with small regulating brush removed or with contact surface reduced, as in such case the normal charging current cannot be produced.

In extremely cold weather it is advisable to "break away" the engine by hand cranking, turning over a few times, thus preventing undue drain on the battery.

If the engine does not fire promptly pull the priming rod; if still no success is met with, examine the ignition system and adjustment of the carbureter.

Remember the starter is only intended for cranking the engine. Should the starter fail to turn the engine over, before attempting any adjustments try cranking by hand to be sure the crankshaft is free to revolve.

The Genemotor is designed to give satisfactory operation with the Ford cars running under normal conditions. If, as with any electric starting and lighting system, the car is habitually operated on short runs with many stops or at very low speeds the battery may become depleted, due to the fact that in such cases the average charge is less than the requirements for starting and lighting. Special charging may then be necessary.

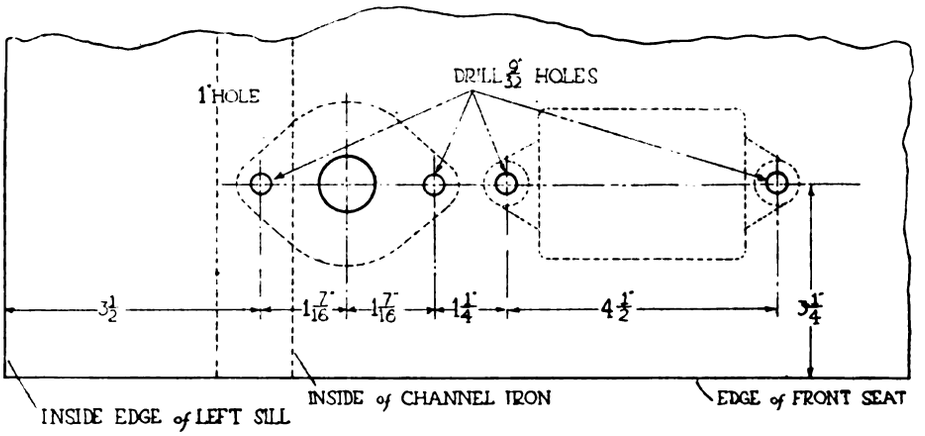


Fig. 4—Diagram of the hose to be drilled in the heel board to support the starting switch and cutout

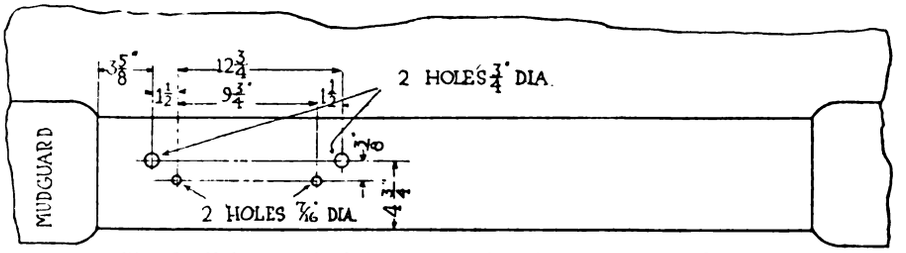


Fig. 5—Holes required in running board for mounting battery

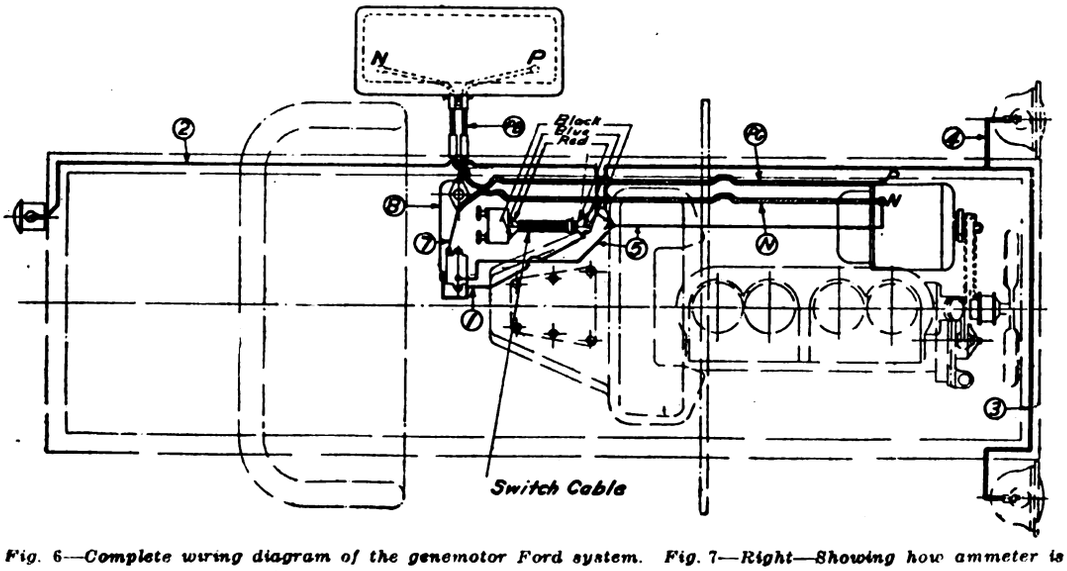


Fig. 6—Complete wiring diagram of the genemotor Ford system.

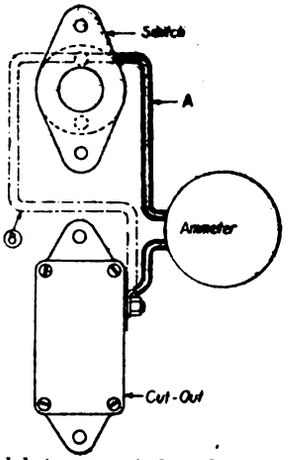


Fig. 7—Right—Showing how ammeter is wired between switch and cutout

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Monthly Inspection and Service Contract

Used by Detroit Electric Dealers in Kansas City, Chicago and Minneapolis

This agreement made and entered into at Kansas City, Mo., this *11th* day of *February*, A. D. 1918, by and between ANDERSON ELECTRIC CAR COMPANY, a Missouri Corporation doing business within the State of Missouri (hereinafter called Company), and *Mr. C. R. Butler* of Kansas City, Mo., who is the owner of Detroit Electric Automobile *Model 75, No. 10534* (hereinafter called owner), WITNESSETH:

WHEREAS, It is of mutual advantage to the parties hereto that the Detroit Electric Automobile of said owner be operated with the greatest efficiency and the lowest possible maintenance cost, and

WHEREAS, The Company, by reason of its superior facilities and the volume of its business and the efficiency of its skilled electrical and mechanical employees, and by means of regular inspection and prompt minor adjustments and repairs, is enabled to minimize the maintenance cost and to raise the service efficiency of said Detroit Electric, and

WHEREAS, The owner desires to bear a portion of the expense of such maintenance, inspection and service,

NOW, THEREFORE, in consideration of the making by the owner to the Company of the payments hereinafter provided to be made and the performance of the covenants hereof by the owner, the Company hereby agrees to furnish the following service:

Grease and Oil entire car where provision for such is made, except differential gear and motor. (These parts are cared for when car is overhauled, which should be done twice yearly.)

Adjust chains, brake rods, radius rods, torsion rod (when not frozen), spring shackles, controller lock, all controller speeds, foot brakes, controller brakes, motor brushes, steering gear, and grease cups (all grease cups should be turned down once each week), and adjust door bumpers and stops, and window catches.

Examine batteries by taking gravity readings of a sufficient number of cells. Locate leaky and dead cells, if any, and determine and report condition of battery as to flushing and general care.

Clean commutator and dress down controller contact fingers and segments.

Line up wheels unless misalignment is due to accident. (In this case the owner will be notified and authority secured for necessary labor and materials, if any.)

Inflate pneumatic tires.

This service does not include replacements of broken, damaged, worn or lost parts, but a report and recommendation of necessary repairs, if any, will be submitted, together with an estimate of the expenses for materials and labor required.

It is specifically agreed that when notice of the necessity of replacement of broken, damaged, worn or lost parts shall be furnished to the owner, that thereafter the service hereinabove provided shall not be rendered with respect to such broken, damaged, worn or lost parts, and that by reason of such inspection and service, the Company does not assume to make any warranty other than the written warranty, if any, made at the time of and as an incident to the original sale of such car to the owner.

It is specifically agreed that this service shall be rendered by the Company only upon the date or dates agreed upon from time to time, and such date shall be fixed as nearly as practicable upon the same date of each successive month, but the Company shall give the owner notice three days prior to the date of such inspection and service. The car must be delivered by the owner to the Company's place of business upon the date appointed, and permitted to remain with the Company a sufficient length of time to permit the rendition of such service, and then called for by the owner. The Company will, however, upon request of owner, call for and deliver the car, for which service the owner agrees to pay 25 cents in each direction, and the owner agrees, in each case when he requests such service that the employee of the Company becomes the agent of the owner and that the Company shall be absolved from all liability arising while the car is in the possession of such employee, at the request of and as the agent of the owner.

The owner agrees to pay to the Company, upon rendition of invoice, immediately following inspection service and report, monthly, the sum of Three (3) Dollars. If for any reason the owner fails to bring the car to the Company's place of business for service on the regularly appointed day, and a lapse of more than five weeks occur between service dates, the charge for the first service following such lapse shall be Five (5) Dollars.

It is mutually agreed that this service contract shall be and remain in full force and effect for a period of *1* year and until cancelled by either party by the giving of written notice to the other. The sale and transfer of said car by the owner shall, upon notice to the Company, constitute a cancellation of this agreement, but the new owner shall be entitled, upon application, to be substituted as a party to this agreement.

IN WITNESS WHEREOF the parties hereto have caused these presents to be properly executed at Kansas City, the day and year first above written.

(SEAL) .....

ANDERSON ELECTRIC CAR COMPANY.

Owner's Address, *1324 Grand Ave.*
Res., Rochambeau Hotel.
Telephone, *South 5800 Bell.*

By *A. T. Clark,*
Kansas City Manager.

This is the form of contract employed by Detroit Electric users in Chicago, Kansas City and Minneapolis. The contract provides that the owner shall secure monthly service and PAY for it

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THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Anti-Glare Laws

Editor Motor World: If convenient, and it is not too much trouble, will you please mail us copies of the different anti-glare laws for automobile headlights as adopted by the different states? We presume that you have these copies on file, and if you will send us same we will appreciate it very much.—Electric Appliance Co., New Orleans, La.

Answer—It is not possible to mail you copies of all the state anti-glare laws, as they are too lengthy to be copied on the typewriter. If you write to the Secretary of State of each state you can get a copy of the different motor vehicle laws containing the above. A digest of the Headlight Laws was published in Motor World under date of Sept. 12, 1917. A copy of this is being mailed you.

During 1918 the legislatures of the various states convene as follows:

Georgia	June 27
Kentucky	January
Louisiana	May
Maryland	January
Massachusetts	January 3
Mississippi	January
New Jersey	January 9
South Carolina	January 9
Virginia	January
New York	January 3
Rhode Island	January 2

The statutes of the states whose legislatures do not convene during the year 1918 will, of course, remain the same.

Stole Customer's Coat

Editor Motor World: We are operating a public garage in the state and recently had a party drive into our place to have some repairing done on his car. In the meantime other cars came in for storage, thus blocking the way for him to get out, so he left his car with us for storage with the other cars (but no charge was made him for storage) which were in the city during a public entertainment.

During the time his car was in our place for such storage, he claims a fur coat was stolen from it. He gave us a check for the labor we put on his car, and, *after claiming that we would be responsible for the stolen goods*, he has notified his bank to stop payment on this check.

What we want to know is, are we responsible in a case of this kind? We did not charge him for storage, and we have a sign up in our garage that we will not be responsible for goods that are left in cars. What would be the effect if we had charged storage, in view of the fact that we have such a sign.—Subscriber.

Under ordinary circumstances a garageman must use ordinary care and prudence to keep the property left with him so that it will not be damaged or stolen. Articles left in the car must receive the same care and attention as the car itself if the garageman's attention is called to them and he consents to their remaining there.

If a garageman notifies a customer that he will not be responsible for personal property unless it is checked at the office he is, of course, not responsible if the owner fails to check it.

A garageman is under the same responsibility to keep the property of customers who are having repairing done, so that it will not be damaged or injured. It seems to be the law that if a garageman wishes to relieve himself of responsibility as to robes, etc., he must provide a locker in which they can be placed or a place where they can be checked.

"Fair" Is Not "Good"

The Supreme Court of New York decided recently that when a garageman contracts to put a car in "good running order" he does not carry out his contract by putting it in "fair condition."

Suit was started by a garageman against a motorist to recover for repairs. It appeared that the garageman had been employed to make repairs and furnish supplies, and after certain work had been done a new agreement had been entered into in writing under which the garageman undertook to put the car in "good running order."

When the work was finished the car was driven to the motorist's place of business, but he would not accept it until it was examined by his mechanic. The car was then returned to the garage and the motorist later called with his mechanic. When the call was made the car would not start for at least 20 minutes and the magneto and muffler did not work properly.

The garageman refused to allow the owner to take the car out on the road and test it. The court held that the car had not been put in "good running order" because one of the men in the garage admitted that it had not been put in "first-class condition," and "fair condition" was the most he would say of it.

The court held further that the garageman should have allowed the car to be tested, because the motorist was clearly entitled to make a reasonably adequate examination.

Be Careful of Minors

Another case was recently decided in favor of a minor against a garageman. The minor bought an automobile from a dealer and paid part of the purchase price in cash and gave a promissory note with two endorsements for the balance.

When the note became due after the minor had used the car for several months he notified the dealer that he was going to disaffirm the contract on the ground of infancy and that he would like to have his money back.

The dealer's answer to this demand was a suit on the notes. The court decided against the dealer, however, holding that as the purchaser had bought the car before he was of age he had the right to disaffirm it, and that the dealer, having the car back in substantially the same condition in which it was sold, should be satisfied and return the purchase price as he was not entitled to the purchase price and the car, but only whichever of these two the minor chose to give him.

The court held that as the dealer rented cars for hire from a garage where he stored them, a return of the car by the minor to that garage was a proper redelivery, since it had been delivered to the purchaser from there when it was originally sold, and the endorsers of the minor's note were released from liability.

No Lien Law This Year

The garagemen's lien law bill originally sponsored by the United Garage Associations has been introduced in the New York Legislature for the third successive year. This bill would give garagemen and repairmen a lien for storage, maintenance or repairs, and under it the lien would not be lost if the vehicle was allowed to go out of the garageman's possession, as he would have a right to retake possession by a replevin suit. This bill is a great improvement over the present New York lien law, but I do not believe it will be enacted into law this year because it was introduced so late.

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Repairshop Shortcuts

From Motor World Mechanics

NO. 1610—SMALL BATTERY CHARGER

There are times in every shop when just a little charging is required to put a battery in A1 condition, and it may not be desirable to go to the trouble of putting it on a regular charging line. In such a case an old car generator driven from the line shafting may be used. Only a simple charging board is required, consisting of a regular car ammeter, a home-made rheostat for varying the rate of charge and a cutout relay, the function of the latter being to break the circuit when the speed drops or motion ceases entirely, thus shorting the battery.—E. Hempel, Buffalo Overland Branch, Buffalo.

NO. 1611—BUSHING REMOVER

This bushing remover is for taking out bushing where only one end is open. The first operation is to thread the bushing. Next a bolt carrying a sleeve and a nut is screwed into the threads in the bushing. Then by holding the bolt head and turning down on the nut the bushing can be readily pulled.—R. C. Rognon, Salt Lake City.

NO. 1612—FOR ADJUSTING BRAKES

This generally is a two-man job, but can be made into a one-man job by using a jack in the manner shown. If the jack is a little short, put a block of wood between it and the seat support. Any degree of tension can be obtained in this way by varying the thickness of the block of wood by a fraction of an inch if the lift of the jack one notch gives too much tension.—Percy Everingham, Oakland, Cal.

NO. 1613—DRIVING FORD BUSHINGS

One good way to drive out the bushing in a Ford steering spindle is to thread the bushing and leave the tap in place. Then drive a small rod through from the other end, thus forcing the bushing out. The tap will easily stand the strain.—R. C. Rognon, Salt Lake City.

NO. 1614—UNIVERSAL FORGE

The device consists of two gas blow torches and a cast-iron table topped with firebrick. Each torch is carried in a universal clamp so that the flame may be effectively directed on the work, or the torches may be removed and used separately. Air pressure is supplied by a blower to a reservoir under the table, the reservoir providing an even flow of air. Rubber tubing is used to conduct the air and gas to the torches.—Harry A. Tate, Superintendent A. W. Haile Motor Co. (Studebaker), Buffalo.

NO. 1615—SILENT CHAIN DOLLY

This dolly is for riveting the link on a silent chain. The full cylindrical portion is placed between the chain and the crankcase with the adjusting nut resting against the wall of the case. The shoulder of the dolly is the anvil for the rivet. The nut is adjusted until the tool will stand in place without holding. Then the riveting is done.—Kane Cadillac Co., Buffalo.

NO. 1616—ELEVATOR SAFETY DEVICE

When an elevator is controlled by a pull rope there is always danger when a car is being loaded or unloaded that someone on another floor will start the elevator. To prevent this happening is the purpose of the device shown. A cylindrical block is bolted to the rope and is slipped between two spring jaws when the elevator is stopped so that in case pressure is applied to the rope the elevator cannot be moved.—A. Selzer, Foreman Buick Motor Co., Buffalo.

NO. 1617—BALL SOCKET WRENCH

This wrench is for adjusting the ball and socket joints in steering rods. Usually the adjustable side of the socket has six radial slots or castellations, the member being held from turning by a cotter pin resting in one of the slots. The usual method of adjusting it is with hammer and cold chisel or some equally makeshift device. Hence the desirability of such a tool. It may readily be turned on a shaper using a fine tool, i.e., one which will clear the teeth. The work should be pivoted at the center. After a central hole is drilled the material between the teeth is roughed out and then the teeth are formed.—Kane Cadillac Co., Buffalo.

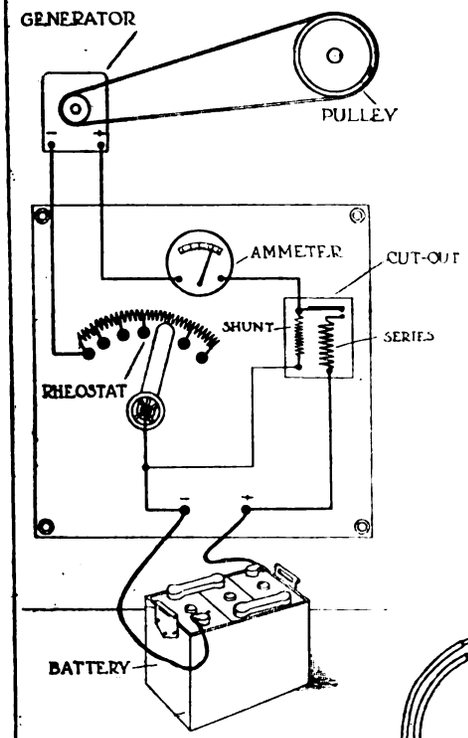
NO. 1618—SHOP DOOR LOCK

An electric door lock with two push-buttons is an excellent device for allowing easy egress from the shop, yet making entrance without a key impossible. Pressing a button unlocks the door. One button is placed close to the door so that anyone wishing to go out may push it and thus open the door. Anyone wishing admittance must go to a window, and if it is granted, the door is opened by the pressing of a button by the attendant at the window. These two buttons are connected in parallel.—Kane Cadillac Co., Buffalo.

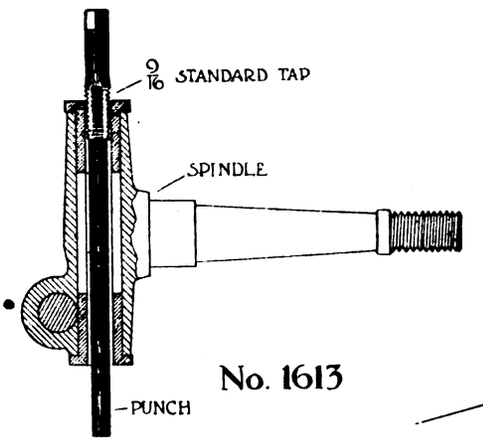
$1 a Shortcut

SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. Motor World will pay $1 for each Repair-shop Shortcut that is accepted for publication. The only requirements are these: 1—*Describe the shortcut briefly but clearly, in few words.* 2—*Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job.* 3—*Write on ONE side of the paper only.* 4—*Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual or if there might be any doubt as to the spelling of the name print it in capital letters with your pencil.*

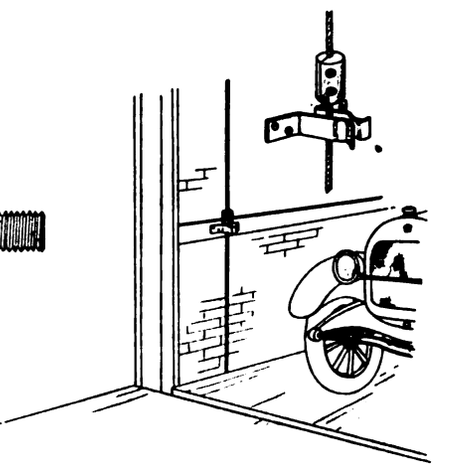
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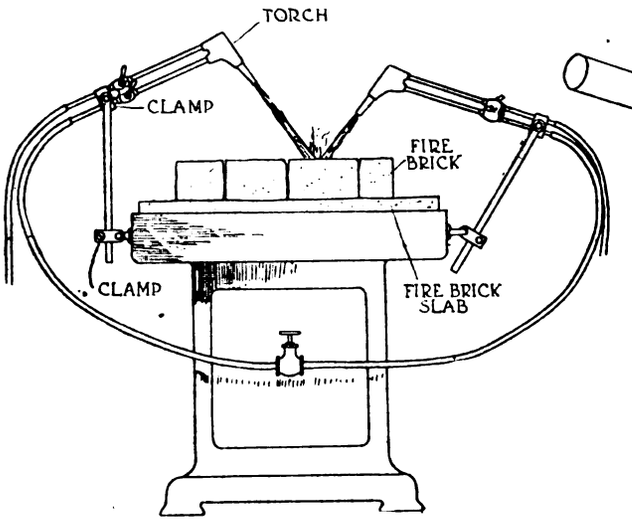
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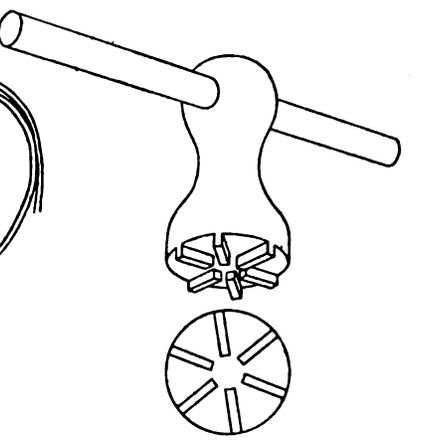
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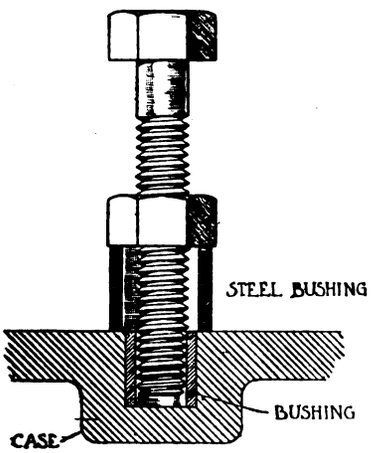
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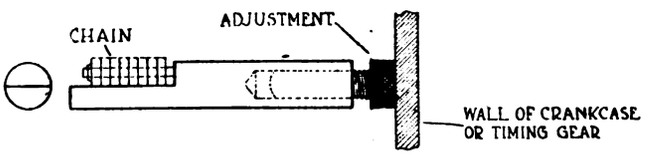
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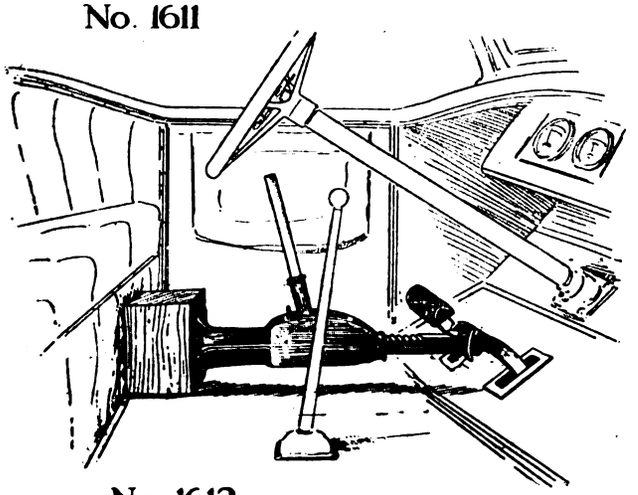
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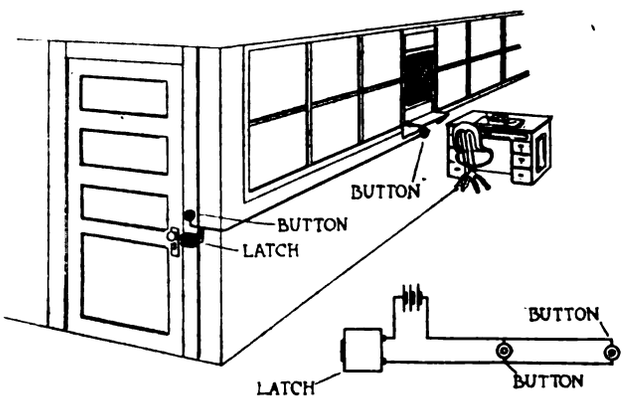
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Editorial Observation

Solve Your Problems

EVER since the motor car industry has been a little bit of an industry we have heard about the problems that are connected with it. We are still hearing about them and doubtless as long as there is an industry we shall hear about the problems that are connected with it.

There are problems connected with every business. There isn't a phase of activity in life in which there not problems. If there were no problems there would be no zest to business or sport or anything else. The surmounting of problems is what the business executive is for.

Too many times a man who has problems to meet does too much talking about his problems and not enough thinking about them. There probably isn't a problem in business that could not be solved if it were taken hold of in the right way by the man who has to meet it.

We have our used-car problem. It is a problem for thousands of dealers, and out of the thousands there are a few dealers who have successfully met with a problem and have solved it. They have made their used cars a business instead of a problem—and are making money on them.

The same thing can be done with any phase of business if it is given thought and attention. The good business man solves his problems and instead of recognizing that they are problems transforms them in some way into a business asset. They no longer remain a liability.

Similarly, we have the problem of the curbstone dealer, the problem of the cut-rate tire man, the problem of the mail-order house and the problem of this and the problem of that, yet there is not one of these things that hasn't in some way been encountered and solved by the successful business man. And he is successful because he knows how to solve problems.

He who takes hold of his problems in an energetic way will soon discover that they are only details of business. He will find himself riding successfully over the road that before he began the journey looked so rough that progress seemed impossible.

Consider the Dealer

PERIODICALLY, but happily with diminishing force, the talk of industrial curtailment begins to circulate. It matters not whether this curtailment is due to so-called "drastic restrictions" or whether it is the natural curtailment due to shipping embargoes or war production interfering with normal output, the attention is always focussed on the factory.

As a matter of fact, the factory itself is not the thing to be considered at all, but rather the vast selling organization which depends upon the factory for its livelihood. The personnel of this great organization exceeds the factory payroll many times over in most instances. War work secured by the factory will not repay these men who are out in the field selling the commercial output of the plants.

For this reason the overloading of factories with war work which could be more equally distributed is wrong. It does no particular hardship to the factory so far as the production machine is concerned, but it does do harm to the dealer organization which has been built up and upon which the prosperity of that particular business, and in a measure that of the country, depends.

The men in the selling end of the business would not starve to death. They would drift into other fields and would find their level in many industries.

In the meantime a powerful team that could have supported a taxation, which in turn would have poured money into the treasury of the government, has been destroyed.

Let us not, in our eagerness to have the factories of our industries contribute a heavy share of the munitions, overlook the dealer organization upon which the prosperity of the industry depends. The dealer should receive the support he deserves.

By speeding production and working at a war-time pace we can absorb the munition work and in addition carry on the industries which form the wealth of the nation. We must manufacture enough commercially to support the dealer, who must have something to sell in order to stay in business.

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Letters from Readers

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

Going on Cash

Editor Motor World: I have been in business one year and want to establish my business on a cash basis. Any information you can furnish me along these lines will be appreciated.

I have noticed a poster asking the public to stop wasting gasoline and giving data on the amount of gasoline consumed, amount wasted, etc. Where can I obtain these posters?

Where can I obtain posters relative to "service." I noticed one in a garage reading: "Service does not mean something for nothing," etc. Are there any firms that print placards and signs of this kind?—W. F. Sherwood, Irvona, Pa.

Answer—A great many dealers and garagemen are putting their business on a cash basis. We are sending you a copy of Motor World of Dec. 6 in which the first story relates to the cash business. There is a letter there that you could use to send to your customers if you care to do so.

Posters relating to service can be made by any printer according to your order. We do not know of any one who issues a standard poster of this kind. Our suggestion is that you decide what you want to say on the poster and have a printer in your town make some for you.

The poster relating to gasoline was sent out by the National Automobile Chamber of Commerce, 7 East 52d Street, New York City.

What Do YOU Say?

Editor Motor World: In looking over Motor World issued Feb. 20 our attention was particularly caught by an article on page 13 under the title, "You Must Be an Automotive Dealer."

While the treatment of this subject by the writer was no doubt based on first hand information gathered from the distributers who were exhibitors at the Kansas City show, we are inclined to believe that the figure used in making up the example of a "typical" dealer's possible profits on a year's business were entirely imaginative.

Our conclusion is based on several years' experience with one of the best sellers in a territory where we have consistently enjoyed the pick of the business. During the last season our gross business of $111,000 shows a net profit of about 4 per cent with an invested capital of $30,000, and we are very much inclined to think that your "typical" dealer after he has absorbed his losses on second-hand cars and other losses incident to a business of this character will find his net profit more like 10 per cent on his invested capital than 10 per cent on his gross business.

We do not mean to convey the impression that the business does not offer an opportunity for profit, but we do wish to go on record to this effect. To make money the layout must be composed of the following elements: Sufficient capital; experience; popular live line; aggressive merchandising methods; hard, well directed work.

Even this combination is not a sure money maker every season, as so much depends upon the distributing agency through whom the dealer buys his cars. In the last analysis it is the attitude of the distributer to his dealers that makes or breaks them, and from what we can hear from the dealers in other lines of cars the distributers are pretty much alike in their business methods. To the man with limited capital and experience who is contemplating breaking into the retail automobile business we most sincerely recommend serious introspection. —J. C. Hunchberger, Glendale, Cal.

Answer—As suggested in your letter of March 3, the figures on page 13 of Motor World of Feb. 20 were not quite true to fact. When we run across the man who is a real automotive dealer we shall be able to have a very good story on how much profit he makes out of his various departments, but so far we have not seen a man who handles all the different lines mentioned in this particular story.

We have also heard the argument against the automotive idea that it contains all sorts of business troubles for the dealer. This is true, but it is not any more true than it is of selling cars.

Dealers have had and always will have trouble selling cars, and the trouble connected with an automotive business do not seem to be any more numerous in proportion than they are in the car business. Neither is the overhead proportionately greater, whereas the profits are proportionately much larger. We should like to have further ideas from yourself and other readers on this subject.—EDITOR.

That Income Tax

Editor Motor World: Please refer to your issue of Feb. 6 on Income Tax. Would like some information in reference to manufacturers who sell their cars, using quantity discount. For instance, the factory ships cars, allows 18 per cent and charges war tax on balance. After a certain number of cars have been purchased this discount will reach 25 per cent, yet the war tax has been paid on the 7 per cent. How does the manufacturer arrive at the war tax that he pays the Government? Is there a refund to the dealer at the time this rebate is paid?

Also in reference to a distributer who receives a certain price and pays the factory a war tax on the price he pays the factory. He sells this to the sub-dealer at an increased price and also charges a war tax on the increased price. Is this legal, inasmuch as the distributer undoubtedly keeps the war tax on the difference between the price he pays the factory and that which he receives from the dealer? — Spencer Auto Garage, Charleroi, Pa.

Answer—There is a tax of 3 per cent levied on the price for which the cars are sold by the manufacturers. Monthly reports are filed by the manufacturers, who can put in a claim for the rebate due.

As regards manufacturers and distributers or distributers and dealers, they must straighten out the matter of the tax among themselves, as the Government is only interested in seeing that the full tax is paid to it.

Why the Motor Truck Has Come to Stay

Editor Motor World: When a country, unprepared for the greatest calamity that can befall it, is plunged suddenly into a mighty war whose end no one can foresee, it almost invariably follows that business conditions are disrupted, thrown into chaos, and often temporarily paralyzed.

In such a crisis, corporations and all big business houses suspend the mad pursuit of private fortunes in order that their products or their plants may be devoted to the needs of the country whose flag protects them and whose standing, in the eyes of civilized nations, is their pride.

It is hard indeed to define the line at which the pursuit of profits ends and pure patriotism begins. Some there be whose possible loss of inflated profits looms big, but these fortunately are in the minority, and the vast majority of business men are only too glad if they can serve their country through their businesses; and since the Government allows subsidized business a liberal profit there is the less reason for delaying to come to the rescue.

That the maker of the motor truck should come to regard his business as a patriotic duty was probably foreseen by almost nobody when war was first declared, and only within the past few months has it become apparent that an industry, still in its infancy, was destined to grow into and to remain one branch of the world's biggest businesses.

The gulf between private gain and public service was so quickly bridged that the amazing performances of motor

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trucks are now accepted as a matter of course. There is no dissenting voice to the statement that the motor truck can haul more quickly and more economically over the shorter distances than the railroads can, but there are several other advantages in motor truck transportation that have not yet been discussed to any extent but which are fully as important as those which stand out so prominently.

One of the greatest of these is the amount of labor saved. In a railroad shipment from Philadelphia to New York, the goods are placed on a dray or truck, taken to the freight station and unloaded, then transferred to the freight car and carried to the shipping point where the same process is repeated, a total of six operations. In a solid load motor truck shipment the load is put on the truck by the business firm that sends it out and it is not handled until it reaches its destination, a total of two operations. Multiply this solitary instance by a few millions and you begin to get some idea of the amount of labor that might be saved.

Then, too, railroads do not always carry shipments to a point anywhere near the final destination and the consignee who wants to get his merchandise often has to drive to the freight station five to fifteen miles away. The motor truck does not run on rails and in these days of sturdy construction can run anywhere that a road can go, and in consequence the merchandise can be delivered to the very door of the firm to which it was shipped. These two reasons alone would be quite enough to insure the motor truck's place as a fixture in the future scheme of merchandise transportation.—Vim Motor Truck Co., A. G. MacKenzie, Advertising Manager, Philadelphia.

Must He Know It All?

Editor Motor World: Note last paragraph of your Reilly story: "Give the Goods a Chance," in March 6th issue of Motor World.

Buy Liberty Bonds

You say that you do not see how a salesman can expect maximum results, unless he uses all points of salesmanship manufacturers have created for him to use.

Do you believe that this would be possible in the automobile accessory game?

Do you think it possible for an accessory salesman to memorize all factory talks on all the lines that he handles, and be able to present a fair competitive argument against a similar article of another manufacturer?

For instance, they handle the patent cotter pin that has a great many advantages over the old style plain type, but it takes time to explain this to a dealer, and there is a like condition throughout the entire line up and including the highest mechanical problems, that would be magneto and carbureters.

Some time at your convenience would like to have an expression from you as to what this condition will finally result in. Will it not eventually come to a point where we will have to use specialty men covering the different branches of the line?

For instance, a specially trained man on ignition and items pertaining thereto. The same on carburetion; others for lighting and starting, and still others for ordinary items of the line.

This question has been brought up and discussed quite a good deal throughout various parts of the country, and by various jobbers that have never as yet found a plausible remedy, unless it is the specialty salesman plan.—Ozburn, Abston & Company, C. B. Johnson, Sales Manager, Memphis, Tenn.

Answer—Answering your second paragraph, I will say that I don't believe a jobber's salesman is a 100 per cent salesman unless he knows all the sales points of his goods. I don't think, however, that he could use all of them on every visit that he makes to every garageman, because it would take all day to go through the list.

I believe using the maximum number of points on a certain number of articles is, however, possible with every visit.

I do not think it possible for an accessory salesman to memorize all the factory talks on all the lines he handles, but I do believe he should be able to present a fair competitive argument against a similar article of another manufacturer. By that I do not mean that he should go into competitive argument against other articles to an unwise extent.

As to the patent cotter pin, I don't see how you really can expect to sell an article like this unless you actually present a sales point. Of course, this takes time. Do you see any other way to sell an article than to take time enough to explain its sales point?

As to your eventually employing specialty men I would not say that I believe this would be your plan of the future. I do believe, however, that a man can specialize on a certain group of goods on each trip, aside from representing the entire general line. Perhaps specialty men are necessary in cases where you have a starting and lighting system and other large units of that kind, but for the ordinary run of goods that are jobbed I hardly think that would be necessary.

O. R. McDonald, who is now with the Gibson company, and who used to be with the Herring Motor Co., tried the plan of having the salesmen concentrate on tires at certain times. They, in other words, became tire specialty men for at least one trip. In this way the Herring company was able to move a considerable volume of tires. I believe McDonald's experience was that the ordinary man could not handle the entire line of goods and do a good business in tires. In order to move any tires he had to concentrate on them.

It seems to me there is a good thought in this as applied to every thing that a jobber handles. Supposing you wished to move a stock of piston rings, a stock of tire covers and a certain line of spark plugs. In this case could not the salesman school himself on the arguments for these particular goods and show the dealer how to sell them, concentrate on them and push this line out in addition to supplying the dealer's needs with whatever else there is in the line.—EDITOR.



IF AMERICA needs more women to drive ambulances in France, it is certain that five competent motor car pilots will be found in Parsons, Kan. Dressed for roughing it, the five women pictured above left the Briscoe Plant at Jackson, Mich., Wednesday, March 20, driving as many Briscoe cars. The man in the picture is C. E. Ervin, Briscoe dealer in Parsons. The long trip over roads that in some places were impassable was made without incident.

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The RETAIL NEWS

SOUTH

The Savannah Motor Sales Co., Savannah, has opened salesrooms on Bay Street for the Elcar.

The H. W. Johns-Manville Co. Memphis branch has moved to new quarters at Madison Avenue and Second Street.

New Garages

J. L. Williams.....Buena Vista, Ga.
Talbutt-Hemingway Motor Car Co, Savannah

MOUNTAIN

The Hammond-Babber Motor Co., Colorado Springs, has succeeded the Hammond-Sellers Motor Co.

NORTHWEST

Rubottom Bros. have bought the Einspahr Automobile Co., Odebolt, Iowa.

R. O. Smith, Harris, Iowa, has sold his garage to a stock company.

Fred Rodewald, Malvern, Iowa, has leased the Anderson Garage.

O. L. Leon, Kanawha, Iowa, has purchased the interest of his brother in Leon Bros. Garage.

As A. Cutting, Iowa Falls, Iowa, will open a new repair shop.

V. S. Hall and H. H. Sloan, Mt. Ayr, Iowa, have bought the Mt. Ayr Implement & Motor Co.

The Kirgis Auto Co., Perry, Iowa, has moved into new quarters.

W. R. Bennett, Perry, Iowa, has sold his motor car business and building to L. W. Maytag.

The Manbeck Motor Sales Co., Des Moines, has taken over the business of the Newby Motor Co. Earl Manbeck will head the new concern.

The Goodyear Tire and Rubber Co. has opened a new service station at 1010 Locust St., Des Moines.

J. E. Gibson, College Springs, Ia., has bought out the interest of his partner in the garage firm of Gibson & Dugan.

J. Eaden, Council Bluffs, Ia., has bought the repair shop of Sidney Reade.

J. W. Hall, Greenfield, Ia., has bought the West Side Garage.

Herbert Kemski, Waconia, Minn., has opened a vulcanizing plant.

G. Potts has opened a vulcanizing plant at Rochester, Minn.

The Handy Lewis Motor Co., Spicer, Minn., has bought the garage of Nelson & Erickson.

Thomas McCrimmon, Wheaton, Minn., has bought the vulcanizing business of Robert Neuman.

F. Lantz and H. M. Fuller, Swanville, Minn., have leased the Mielke Garage.

Carl Hodapp and Hans George, Mankato, Minn., have bought the Thomas Garage, 127 Washington Street.

G. M. Ebersole, La Porte, Minn., has bought the Milo Whiting Garage.

Remington Bros., Villard, Minn., have rented the C. F. Taylor Garage.

Ezra Olinger, Castle Rock, Minn., has bought the interest of E. Glad in the Castle Rock Garage.

H. P. Jorenson, Eagle Lake, Minn., has bought his partner's interest in the Eagle Lake Garage.

J. F. Wolesky, Owatonna, Minn., has bought the interest of F. J. Wolesky in the Anderson Garage repair department.

Emil Delzer, Arlington, Minn., has bought the garage business of Grube & Delzer.

Henry Schefers, Albert, Minn., has sold his garage to Joseph and Ferdinand Gretsch.

The Public Motor Co., Billings, Mont., has not been purchased by the E. P. McDowell Motor Co., as stated in a recent issue of Motor World. E. P. McDowell has entirely severed his connection with the Public company.

F. T. McCormick & Co., Roundup and Lavinia, Mont., have bought the garages of I. G. Madden.

W. N. Skinner, Belgrade, Mont., and **G. M. Leash**, Bozeman, Mont., have bought an interest in the Independent Garage at Belgrade.

Lee Munson, Dooley, Mont., has bought the garage business of J. A. Robinson.

H. A. Schroeder, Montague, Mont., has sold the Montague Garage to Mrs. Ida Griffith, Hingham, Mont.

Harold H. McCulla, Norfolk, Neb., has taken over the Overland-Nebraska Co.

Harry Vaughn, Fairbury, Neb., has bought M. Beaver's interest in the Beaver Garage.

E. J. Von Glern has bought an interest in the E. L. Pratt Auto Co., Nebraska City, Neb.

C. Burdick and Cleg Hughes, Ord, Neb., have formed a partnership and will conduct a supply business.

Ed and Will Brier, Dewitt, Neb., have taken over the repair shop of Claude Wheeler's Garage.

C. Munsey, Broadwater, Neb., has bought the garage of R. C. Dueling.

John Mainard and H. Frye, Mitchell, Neb., have bought the garage of Ayers, Brashear.

C. F. Schauppner, Plainview, Neb., has opened a repair shop.

Frank Engler, Lodge Pole, Neb., has bought the garage of C. Moorhead.

C. Jackson, Scottsbluff, Neb., has opened a repair shop.

Love & Johnson have opened a vulcanizing plant at Mobridge, N. D.

Jerry Keitzman has opened a repair shop at Lakota, N. D.

Lynn Wolfer has opened a supply store at Jamestown, N. D.

A. A. Suszycki, Monango, N. D., has opened a vulcanizing plant.

Ed. Anderson, Jamestown, N. D., has opened a repair shop.

Herman Goehl, La Moure, N. D., has bought an interest in the Ernst Bros. Garage.

Herman Goehl, Edgeley, N. D., has bought a third interest in the Wildrose Auto Co.

O. E. Kron, Williston, N. D., of the Williston Overland Co., has bought the Williston Auto Tire Repair Co. from S. Hansen.

Jess Weeks, Forestburg, N. D., has bought the Walker City Garage.

Reade Auto Co., Grand Forks, N. D., has been sold to H. J. Marberg, Lakota, N. D.

Williamsport Motor Co., Hazelton, N. D., has taken over the Glines Motor Co.

J. Sanfacon, Gilby, N. D., has bought the interest of Lynn Jones in the Haddow & Jones Garage.

L. W. Lieb has opened a used car salesroom at Volga, S. D.

Magnus Gudmanson, Wakonda, S. D., has bought the Wakonda Garage from Ketchum Bros.

Otto Lather has opened a repair shop at Cavour, S. D.

C. G. St. John, Clear Lake, S. D., has bought an interest in the business of Clark & Schiefelbein.

A. E. Bandy, Blooming, S. D., has sold his garage to George Brown, Volga, S. D.

A. J. Ross, Artesian, S. D., has bought the garage of Dana D. Jones.

Théodore Thompson, Wildrose, S. D., has bought the interest of Mike Thorson, his partner.

Frank Feiler, Howard, S. D., has bought the business of Evernes Bros.

Bart Klingler, Lead, S. D., has bought the stock of Ralph Eldridge in the Black Hills Overland Co.

Walter Goodwin, Selby, S. D., has leased the Yellowstone Garage to William Drewer, Monridge, S. D.

Chester Murray, Spearfish, S. D., has bought the Queen City Garage.

New Garages

Sidwell Motor Co.....Iowa City, Iowa
Henry Klippell.....Ogden, Iowa
W. F. Berry.....Lewis, Iowa
Clark & Munger.....Cedar Rapids
McVicker & Long.....Boone, Iowa
Eldridge Battery Co.....Washington, Iowa
Armstrong & Son.....Mt. Vernon, Iowa
Eldridge Battery Co.....Ottumwa, Iowa
Ford Garage (addition).....Elkader, Iowa
Clergy Auto Co.....Des Moines
H. C. Jorgenson.....Traer, Iowa
Bundy Auto Co.....Dows, Iowa
L. C. Kay.....Council Bluff
Robt. Small.....Chadron, Neb.
Machurek & Vanderkolk....David City, Neb.
C. Burdick.....Ord, Neb.
Hayes & Fosblade, 1904 Central Ave., Minneapolis
C. E. Engram, 1710 Chicago Ave., Minneapolis
A. W. Darge.....Good Thunder, Minn.
Albert Fjelstad.....Minneota, Minn.
Meraw & Gamble.....Cloquet, Minn.
Cool & King.....Farmington, Minn.
Woodhead Motor Co.....Brainerd, Minn.
A. E. Schuett.....Waltham, Minn.
Ewald Lewer.....Waseca, Minn.
J. H. Posz.....Sanborn, Minn.
Johnson & Nathen.....Hastings, Minn.
Lot Crawford.....Glyndon, Minn.
J. O. & Aug. Felerabend...Grey Eagle, Minn.
J. J. Omerberg.....Virginia, Minn.
Madson & Syverson.....Twin Valley, Minn.
Kremer, Sanders & Kremer.....Butte
Manly Garage Co.....Valier, Mont.
Peter Nelson.....St. Thomas, N. D.
Michael Durkin.....Minto, N. D.
Benton & Hanson.....Binford, N. D.
Ward Norman.....Linton, N. D.
Phillip Range.....Jamestown, N. D.
Bimbler Bros.....Michigan, N. D.
Ralph Sykora (enlargement)....Dante, S. D.
Johnson Bros.....Plivet, S. D.
J. H. Breene.....Lebanon, S. D.
Harms-Nielson Motor Co..Sioux Falls, S. D.
T. P. McConnell.....Elk Point, S. D.

PACIFIC COAST

The Leach-Frawley Motor Co., San Francisco, has taken over the showroom of the Du Broy Motors Co. and has added the Mitchell and the King. The company will continue to handle Dort and Liberty cars.

The H. W. Johns-Manville Co. has opened a branch office at 1015 A Street, Tacoma.

The W. W. Robinson Motor Co., Oakland distributer, Everett, Wash., has leased the adjoining building as a used car salesroom.

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Young & Wycoff, Tacoma, have opened a repair shop for Ford cars.

J. W. Rogers Motor Car Co., Walla Walla, Wash., has opened new quarters in the Ford Garage.

Acme Motor Truck Sales Co., Seattle, Washington and Oregon distributor for the Acme line, has moved to new quarters at 1508 Eleventh Avenue.

The Willard Storage Battery Branch, Seattle, has moved into a new building on East Pike Street.

The Pendleton Auto Co., Pendleton, Ore., has been reorganized with J. W. McCormack, K. W. Goodale, E. McBroom and H. R. Mangold as officers. The company handles the Franklin, Reo, Marmon, Cole, and Oldsmobile cars and Duplex and Republic trucks.

A. C. Stevens, Winton and Haynes agent, and Lee L. Gilbert, Elgin and Harroun distributor, Portland, have moved to a new building at 15th and Washington Streets, which they will occupy jointly.

The Used Car Exchange, Portland, has opened a new branch at 64 Broadway.

J. J. Hershberger, Hubbard, Ore., has sold the Hubbard Garage to J. M. Hochstetler.

New Garages

W. H. Wallingford (addition).....Portland
Labbe Bros.....Portland
E. M. Newbill.....Clarkston, Wash.
Blaine Auto Co.....Blaine, Wash.
Meerscheodt Bros. .....Seattle
O. C. Halligan.....Tacoma
Heath & Seeds.....Tacoma
Spokane Auto Co.....Spokane

SOUTHWEST

Cobine Bros., Baxter Springs, Kan., have opened a supply store.

Smith & Jones, Chanute, Kan., have added a repair shop to their garage.

James & Somers, Rossville, Kan., have bought the Shank Garage.

The Hodgson Tire and Supply Co., Little River, Kan., has opened quarters here.

O. Bachand, Newton, Kan., has moved his garage from West Sixth Street to West Broadway.

Joe Shaiz and Will Hubbard, Colby, Kan., have bought the repair shop in the Garrison Garage.

H. B. Close, Oakley, Kan., has leased his garage to Ray Richardson & Co.

Charles Harsler, Arkansas City, Kan., has bought the interests of J. C. Bartlett in the Cowley County Motor Co., 116 North Summit Street. A. P. Turner retains his interest in the company.

Mark Cain, Lyons, Kan., has opened a repairshop.

Fred Gampper, Hiawatha, Kan., has opened a salesroom.

J. W. Hopkins, A. W. Killing and Dr. R. E. Spencer have bought an interest in the Autoway Tire & Vulcanizing Co., Ottawa, Kan.

The Hampel Auto Co., Hutchinson, Kan., is moving to new quarters at 15 South Walnut Street.

The Rosier-Howard Sales Co., Hutchinson, Kan., has opened headquarters in Room 809, First National Bank Bldg.

Charles Drashner, Munden, Kan., has bought the Munden Garage.

Ray Richardson & Co., Oakley, Kan., have leased the garage and repairshop of H. B. Close.

Mizell B. Ward, Arcadia, Kan., has bought the garage of Frank Jones.

C. C. Miller, Yates Center, Kan., has opened salesrooms.

Loeser & Jones, Eldorado, Kan., have moved to new quarters at 321 South Main St.

Noah Kornhaus, Peabody, Kan., has moved his vulcanizing plant to Newton, Kan.

The Garnett Exclusive Tire & Repair Co., Garnett, Kan., has moved to new quarters.

Frank Swanger, Abilene, Kan., has moved his business to Detroit, Kan.

Harry Hennigh, Sabetha, Kan., has bought Roy Davisson's interest in the Davisson Bros. garage, repairshop and auto tire business.

E. R. Grove, Arkansas City, Kan., has bought the South Summit Garage from Herman Hun and Thomas Salles.

Leonard Davidson, Yates Center, Kan., has opened a vulcanizing shop on West Rutledge Street.

J. T. Berridge & Son, Atchison, Kan., have bought the King Garage.

The Gates Half Sole Co., Joplin, Mo., is now styled The Akron Tire Co. The company will continue to handle accessories and supplies.

W. V. Riggs and J. Mott Douglass, Kennett, Mo., have bought Baldwin's Motor Service.

Fred Diss and James Irby, Maryville, Mo., have bought the Wray Garage, including the accessories and repairshop.

C. R. Noel, Paris, Mo., has purchased the Ford Garage.

Thomas & McCullough, Cordell, Okla., have closed their repairshop.

J. Golden, Waurika, Okla., has bought the interest of F. Sullivan in the Overland Garage.

The Osage Motors Corp., Tulsa, Okla., has moved from Seventh and Main to Twelfth and Boston Streets.

Zeno Cliff, Talihina, Okla., has bought the interest of J. O. Basso in the McGowan Motor Co.

W. W. Nichols, Forgan, Okla., has bought the interest of his partner, J. Keene, in the garage firm of Keene & Nichols.

The Wright Motor Car Co., has opened salesrooms in Okmulgee, Okla. Arch Wright and Mat M. Mitchel are the proprietors.

The Weleetka Garage, Weleetka, Okla., has been consolidated with the Weleetka Transfer Co.

The Shideler Motor Sales Co., Stillwater, Okla., with Grover Shideler as manager, has opened quarters.

The Auto Repair & Ignition Co., Tulsa, Okla., has moved to 113 South Cheyenne Avenue.

Thos. Savage, Bradley, Okla., has bought James Burrows' interest in the Bradley Garage.

The Anderson Motor Sales Co., Miami, Okla., has established a show room and repairshop in Miami. The company is remodeling the building at 10 A Street, S. E.

The Halifax Garage Co., Clinton, Okla., will move soon into a new building.

The Boise City Garage Co., Boise City, Idaho, has moved to new quarters.

L. Menn, Yorktown, Tex., has bought an interest in the City Garage, formerly owned solely by Charles Lamprech.

Brown, Olinger & Co., Mosquito, Tex., has taken over the firm of Brown & Davis.

Price & Sons, Itasca, Tex., have bought the Atkinson Garage.

J. B. Wilson, Valley Mills, Tex., has bought the garage of H. J. Gibbs.

John Garner, Colorado, Tex., has opened a repairshop.

Ben C. Moulden, Waco, Tex., has bought the Damp McGlasson Tire Co.

The G. M. C. Truck Sales Co., Houston, Tex., will open quarters at 1915 San Jacinto Street.

New Garages

N. J. Earl .....Harnett, Kan.
Elmer Carlson .....Garnett, Kan.
L. D. Scanland .....Holland, Kan.
Ed. Jones .....Salina, Kan.
G. R. Pfoutz ..... Ottawa, Kan.
Robb & Kelly .....Winfield, Kan.
Morgan, Slankard & Fallis.....Treece, Kan.
J. M. Wallace.....Winchester, Kan.
Watkins & Cockrell.....McKinney, Tex.
Mrs. Geo. Fugate.....Ennis, Tex.
John Schmidt .....Nacogdoches, Tex.
L. T. Maxey.....Panhandle, Tex.
L. V. Reeder .....Italy, Tex.
Dr. C. P. Coil .....Oklahoma City
New State Motor Co.....Oklahoma City
Stroud & Colvard.....Salina, Okla.
Dowell Bros. .....Cleveland, Okla.
Everett Barker .....Arnett, Okla.
P. P. Barlow.....Oilton, Okla
W. F. Farriss .....Purcell, Okla.
M. F. Nall & Son.....Lamar, Mo.
Bond Motor Co. .....Charleston, Mo
A. P. Green.....Berryville, Ark

MIDDLE WEST

J. C. Weatherford and E. D. Boynton, Pleasant Plains, Ill., have formed a partnership and will handle tractors.

The Standard Garage Co., Toledo, will move into a new building at 316 Erie Street about April 15.

Roy T. Sprague, Howell, Mich., Ford dealer, has installed a service station for the Fletcher carburetor.

The Holley Carburetor Co. Service Station, Detroit, has moved from 82 Grady Street to the Motor Mart.

Henry K. Storley, Eau Claire, has sold his interest in the Storley Automobile Co. to Matthew Hoesley.

The Union Automobile Co., Eau Claire, has absorbed the Darwin Motor Car Co. and the Eau Claire-Chippewa Buick Co. The combined company will handle Cadillac and Buick cars and the Republic truck.

The Raab-Thieman Co., Sheboygan, Wis., Ford dealer, has moved to its new garage and service building at Eighth Street and Niagara Avenue.

William P. Upham, 415 Marshall Street, Milwaukee, Wisconsin distributor of the Empire, has admitted William H. Schacht as a partner and the company will be styled Upham & Schacht. It will be incorporated under the laws of Wisconsin.

The Wright Auto Sales Co., South Milwaukee, Wis., has opened a tire and vulcanizing shop in its garage and repairshop and will conduct the department under the style of Wright Tire & Vulcanizing Co. Peter P. Kucharski is manager.

The Kroncke Auto Co., Sun Prairie, Wis., has opened a repainting, trimming and general overhauling department, in charge of Daniel Finney.

The Petters Tire & Vulcanizing Co., Antigo, Wis., has opened on Clermont Street, with Harry Petters as manager.

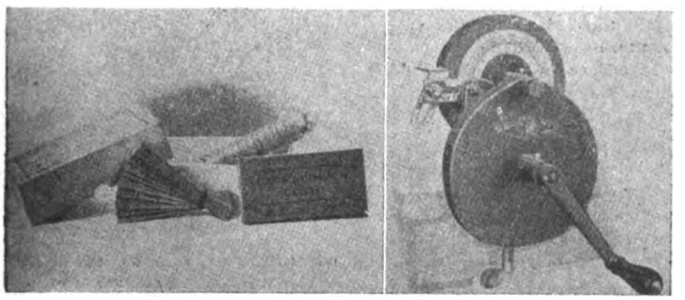
J. J. Eastling, Plainfield, Wis., has established a tire and repairshop on North Street in that city.

New Garages

Walnut Garage .....Canton, Ohio
Evans Motor Co. .....Canton, Ohio
Clemons Auto Supply Co.....Eau Claire
Union Auto Sales Co.....Eau Claire
W. A. Mayhew .....Clinton, Wis.
Ben Farnass.....Lodi, Wis.
Boynton Auto Livery Co.....Milwaukee
Weatherford & Boynton.Pleasant Plains, Ill.
Ben Moore .....Blue Mound, Ill.
H. S. Shurts .....Decatur, Ill.
E. S. Merris.....Decatur, Ill.
Isch Bros. & Hackshaw .....Peoria, Ill.
Stouffer Bros. (addition) .....Decatur, Ill.
Copper Garage .....Detroit

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Accessories



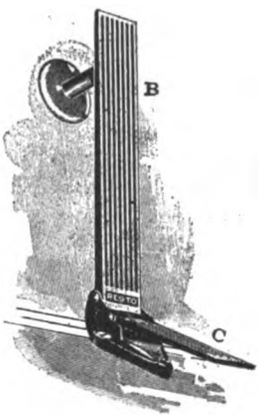
CARBORUNDUM PRODUCTS

A complete valve grinding outfit is furnished consisting of two tubes of compound, fine and coarse, a booklet of Carborundum Cloth for cleaning valve stems and spark plugs, and a package of Carborundum cloth strips. Price 75 cents. Tubes of Carborundum compound are 25 cents, either coarse, medium or fine. Two sizes of grinding machines for shop work also are produced. No. 3 machine is equipped with a 6 in. Carborundum wheel and a tool rest and sells for $7.50. No. 4 machine has a 7⅝-in. wheel and a tool rest and sells for $10.50. Foot-power attachments can be furnished for either.—The Carborundum Co., Niagara Falls, N. Y.

E-W TIRE RETAINER

This is a ring of heavily rubberized fabric built around over 50 braided wires and fitting into straight side bead rims to convert them for the use of straight side tires. Price, all sizes, $2 per pair.—Rubber City Clearing House, Akron, O.

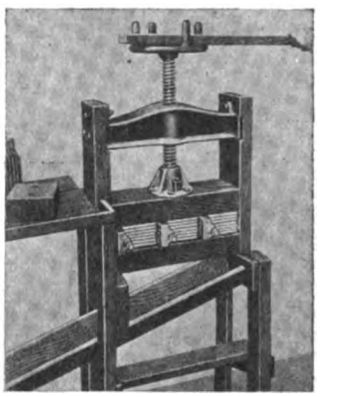




RESTO FOOT REST

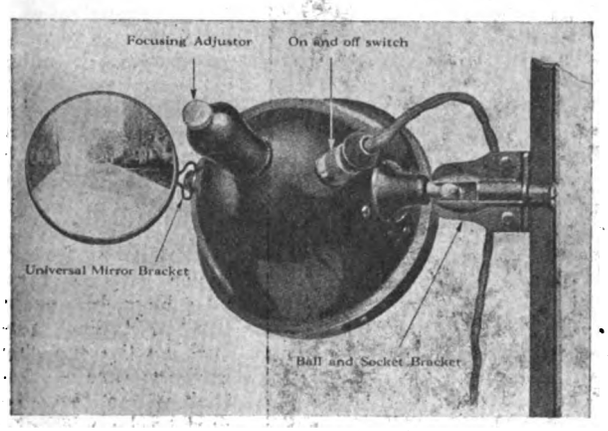
The object of this device, which is applicable to any car having a plunger type accelerator pedal, is to relieve the strain on the driver's leg muscles by permitting a variety of positions of the foot. A variation of more than 8 in. is permitted. Furthermore, the device can be extended to make it easier for a short driver to reach the pedal.

The foot normally rests against B and C; moving the foot forward and depressing the upper end of B increases the speed. A screw in the base under the part C can be adjusted to give a uniform speed. Price $2.75.—Bloom Auto Specialty Co., Tiffin, O.



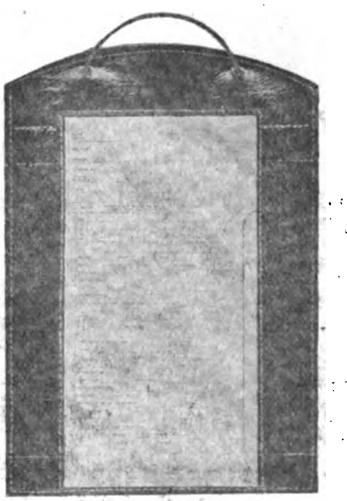
AMBU PLATE PRESS

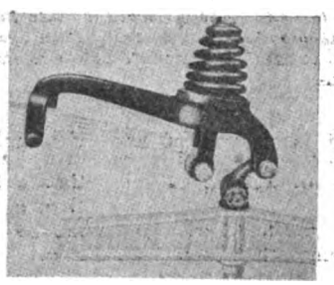
Negative plates of storage batteries frequently require pressing because of the bulging of the active material or to straighten the grids in case of slight buckling. The Ambu plate straightener has been devised for this purpose. There are no metallic parts which can be reached by dripping acid, and such acid as is squeezed out is conducted along a trough and into a receptacle so that floors are not harmed. Three groups of plates can be pressed at the same time. Price $32.50.—American Bureau of Engineering, Chicago.



E & J SPOTLAMP

This 1918 model 98 spotlamp is 7 in. in diameter and 7½ in. deep. It is equipped with a universal bracket which can be attached to any windshield. The focusing adjuster is at the back of the handle and the switch in the plug that carries the cable. The lamp is equipped with a mirror carried on a universal bracket. Price $7.50.—Edmunds & Jones Corp., Detroit.





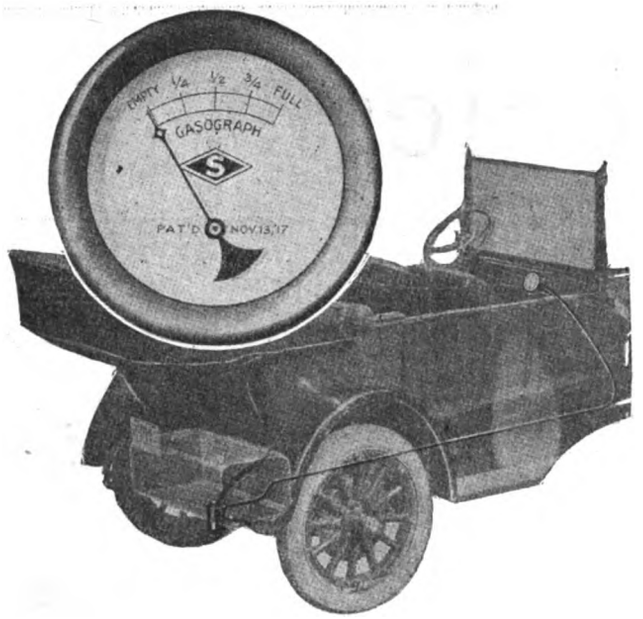
BURGESS REBOUND CHECK

This is a combined rebound check and shock absorber employing the lever principle. It is connected between the ends of the Ford spring leaves and the axle. The movement of the lever compresses a coil spring which absorbs small vibrations and also serves to check rebound. They are applicable to any Ford. Price, $15 per set of four.—Gibson Co., Indianapolis.

INSPECTION RECORD

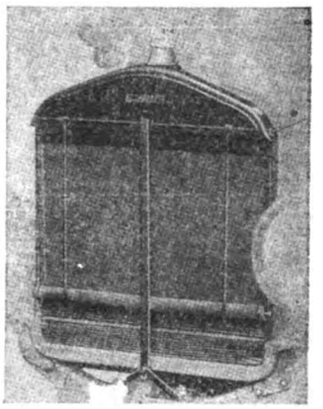
This is a strong imitation leather holder with a celluloid face into which are slipped various inspection and record cards giving instructions for mechanics working on cars. The instructions on the card are clearly visible through the celluloid and the card kept clean. Outfit No. 1 including 1000 duplicate inspection forms, two binders for these forms, 500 time slips, and one binder, 500 duplicate requisitions and 10 card holders costs $35. An outfit containing a smaller number of forms and 5 card holders is $20.—Thomas J. Harton, 212 Church Street, New York.

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GASOGRAPH DASH GAGE

The Gasograph is a dashboard gasoline gage operating on a new principle. It can be attached to any tank regardless of position. The weight of the fuel in the tank creates pressure which is transmitted by means of a small copper tube to the Gasograph which registers the quantity of fuel. For rear tanks, $6; for under-seat tanks, $5.—New Standard Adding Machine Co., 3701 Forest Park Boulevard, St. Louis.



HARAC RADIATOR SHIELD

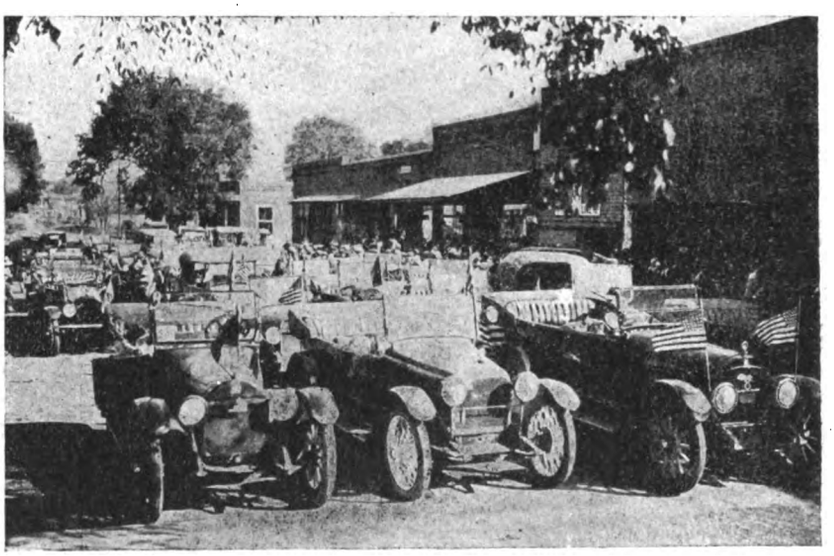
This is an adjustable curtain for Fo which is attached to the front of the radiator and controlled from the driver's seat by a cord. It is lowered by gravity. Any desired opening can be obtained and the temperature of the cooling water carefully regulated to give greatest e.. ency. The device is installed in about 5 min. Price for 191. and 1918 Fords, $5.—Harac Sales Co., Philadelphia, Pa.

"The Small Town Has the Money"

SO frequently has it been demonstrated to business getters in every branch of selling that "the small town has the money" that the dealer of the Middle West is learning not to overlook small town prospects. To the end of further exploiting the out-of-the-way territories, the Kansas City Automobile Dealers' Association routed its fifth annual trade trip this year through many of the "one railroad" towns of smaller than county seat proportions.

The accompanying photograph shows the tour stopping for half an hour in Dexter in one of the typical southern Kansas towns where agriculture is the mainstay and where crops were good this year. Situated between two county seats, both many miles from a large city, Dexter has been somewhat neglected by territory motor car salesmen. The dealers, therefore, found it a fertile field for prospects, and took advantage of the situation.

The fifteen-piece band carried by the tour has played a couple of snappy new airs, a "song-plugger" is singing one of the new patriotic song hits, and when he finishes the secretary of the association and the president of the State Good Roads Association will tell the typical small town crowd of men, women and children what they should do to make their roads good, how much it will cost them and how much they will save in upkeep of vehicles.



Here is the typical small Kansas town where money abounds and which the "rush" salesmen and territory man have frequently passed up for poorer prospects in larger cities. This town, Dexter, in Southern Kansas, turned up some live prospects and a few subsequent sales for the members of the Kansas City Automobile Dealers' Association who are shown stopping here on their recent fifth annual trade tour into the territory

Meantime some of the dealers are already working among the men and women in the crowd, asking about the crops and extolling the virtues of the dealer's car in the tour. When the speaking is over the crowd will wander around among the cars and there will be prospective purchasers lined up before the tour starts.

Stock salesmen have not yet penetrated the small Kansas town to a great extent in unloading securties. For this reason there is more ready money in the banks to be spent for automobiles that are necessities in the community life of country merchant and farmer.

The Kansas farmer who buys his necessities in typical towns such as the one shown in the picture has found that he cannot well afford to be without an automobile. The question that is puzzling him and which he must answer sooner or later is: "Which one?"

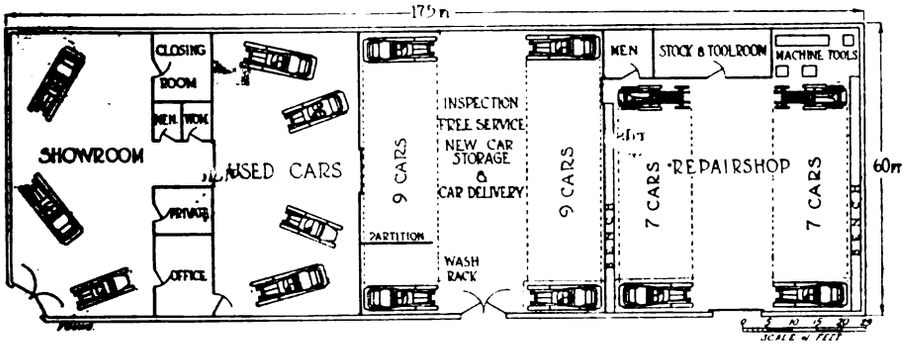
The automobile salesman who is making the biggest gain in business through Kansas is the one who visits every small town in his territory and thoroughly works these prospects at this time of year, when the crops are being moved and when fall work is not of the rush variety.

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SCIENTIFIC CONSTRUCTION

GARAGES *SHOWROOMS* *REPAIRSHOPS*

We shall be glad to draw a plan for you or give you any other aid in your building, free of charge. But be sure to send full details, including a sketch of the plot, showing position of streets



In this plan the new car and used car salesrooms are separate yet both are adjacent to and accessible from the office

Salesroom and Service Building

Editor Motor World: We are enclosing plan exterior sketch of a building we are about to lease when erected, and ask that you give us the best arrangement and size of showroom, office, repairshop, inspection and service space, used car space, stockroom, wash rack, location of benches, windows, gasoline pump and entrances, and if posts have to be used, the correct distance between them.

Our business is strictly a dealer's proposition, selling the Franklin car exclusively, giving monthly inspection service and repairing on same, and making no attempt to do garage work on storage; selling gasoline and oil mostly to our Franklin owners.—Young & Lawton, Syracuse, N. Y.

Answer—Here is a plan for a showroom and service station in which all the items requested in your letter are carefully attended to.

The location of the gasoline pump has been omitted, but it should be placed at the entrance to the inspection department.

Posts are not required and should not be used in a one-story building.

In looking over this plan, please note that new and used car showrooms are both convenient to tht offices. Inspection, free service, new car storage, car delivery and wash rack are combined in one room, inasmuch as you will find this arrangement best.

Using an Odd Shape Plot

Editor Motor World: We would like very much for you to let us have your ideas and plan of forming a salesroom and service station either one or two stories on the following location: This lot was formerly 60 x 180, but lately the Standard Oil Co. has purchased a three-cornered piece facing two paved streets in the southwest corner of this lot with 50 ft. frontage on each street. It is our intention to make our salesroom and offices so that they face the Standard Oil filling station, as we figure this would make a fine display window.—Dimond Motor Sales Co., Benton, Ill.

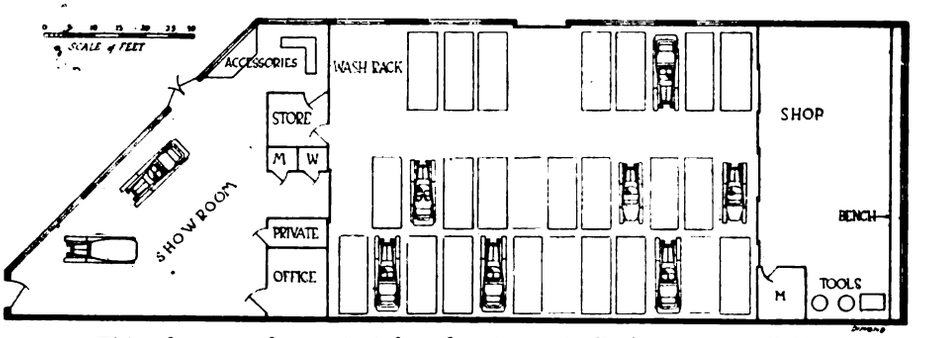
Answer—We agree with you that the space facing the Standard Oil Co.'s plot would make a fine window and we have used it accordingly.

You leave the matter of one or two stories optional, but we have made the building one story because it is quite a large building as it is. However, if, after looking the plan over, you feel that the building is not large enough for your requirements, we shall be glad to devise a plan for a two-story building.

You understand, of course, that the double row of cars in the garage utilizes the space most efficiently and at the same time it does not cause any inconvenience, providing the cars in the back row are those which are taken out late in the morning, and those which occupy the front row must be ones which go out early. Cars in the single row should be doubtful ones which may go out at various times.

We Want More

MOTOR WORLD wants to print pictures of farmers who use sedans. In our issue of March 6 we requested readers to send in photographs; we have received one. It was sent in by F. H. Hagel of Rochester, Mich. He shows the farmer and his family in a Ford sedan. He likes the sedan because of its luxurious exclusiveness. Haven't you sold some sedans to the farmers in your territory? No matter what make of car you sell, if you have, we would like to have pictures of them to print in the Summer Merchandising Number of MOTOR WORLD, which comes out April 24. This photograph is a small kodak print about 3 x 4 that Hagel took himself, apparently, but it is very good. See if you can't send us some. Then you can show your farmer customer how nice he looks when he appears in print.



This plan was drawn to take advantage of all the room available on an odd shaped plot of ground

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Spotlessly clean and well arranged, Chicago's Exchanged Car Show is every bit as attractive as any exhibition of new cars

Chicago's Second Exchanged Car Show

Passenger Cars, Trucks and Accessories Displayed by Nearly 100 Exhibitors—Success Assured

CHICAGO, March 30—Chicago's second annual exchanged car show opened to-day at the Coliseum with every foot of space filled with cars that had been taken in on trade—with accessories on the sides. The exhibits overflowed into the annex, where were exhibited trucks and truck formers. There are thirty-eight exhibits of passenger cars, sixteen truck displays and about fifty booths devoted to accessories. The show will continue until April 7, and is open from 11 to 10 each day, including the two Sundays.

Disposition of used cars taken in by dealers as part payment on new ones always has been a problem. The Chicago Automobile Trade Association solved it a year ago by staging the first used-car show—although it was really a sale. It was so successful that the idea was used this year in almost the same way. The only real difference is in the name. Approximately 10,000,000 free tickets were distributed by the members of the association and the motoring organizations, but gate receipts to-day show that there will be many who pay the 25-cent admission fee.

The cars displayed for sale are all examined by a competent technical committee which vouches for their condition and affixes a tag stating the condition. As these are sold they are removed twice a day and replaced by others. About 800 have been examined. Of these seventy-five were rejected by the technical committee; twelve of these were taken off the Coliseum floor because the changes demanded by the committee were not made.

It is too early to attempt to estimate the attendance during the eight days the exhibition is scheduled, and it is not the attendance itself that makes for the success of a display of cars which are sold off the floor of the hall. Nevertheless, there is reason to anticipate that the record of last year of nearly 40,000 people will be exceeded. That number, when spread over 7 or 8 days, does not fill up a building as large as the Coliseum and its annex, but it does give the visitors an opportunity to examine the cars in comfort. There were two sales in the first 30 minutes.

It is the actual business done that makes for the success of a show of this kind, and if the records of last year are any criterion, the dealers who are displaying cars will dispose of most of them. According to the figures given out of the sales a year ago 375 cars were sold, ag-

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gregating $275,000. With the greater demand for used cars this year these figures may be expected to be exceeded.

Wednesday will be Chicago Association of Commerce Day, and will be featured by a luncheon of the dealers' association, the Chicago Association of Commerce and the accessory exhibitors. Among the speakers will be Robert E. Beach, business manager of the Association of Commerce, and William M. Webster, commissioner of the National Association of Accessory Jobbers. A dinner in the evening will be addressed by Charles M. Stiger, president of the Motor and Accessory Manufacturers' Association.

The show as a whole looks almost as good as a new car show. The prices at which the cars are held are good reasonable prices and should make a good transaction for both seller and purchaser. The prices range from $150 to $4,000. When the initial show plans were made a year ago, the Chicago dealers faced the problem of overcoming the impression in the public mind that a "second-hand" car nine times out of ten was worth just about what it would bring for junk. They overcame it by employing the name "used car," which this year was changed to "exchanged car" and by assurance that the cars were worth the money asked.

This was the plan of inspecting and appraising every car allowed to enter the show and affixing a tag showing that the Chicago Automobile Trade Association guaranteed each car to be as represented. This plan gained the confidence of those who came to the show last year, and was largely responsible for the success of the first efforts Chicago dealers made to bring exchanged cars together to compete for public favor.

In the process of this inspection and up to the time the car, if it passes inspection, is sold, three different tags are affixed to it. The first one, a white tag, is filled in by the dealer and attached to the car before it leaves his place of business. This tag shows the make, style, model, motor number, number of cylinders, horsepower, color of body, color of wheels, the original list price, and the lowest cash price for which it will be sold. In addition, it shows the condition of all of the mechanical units, the lighting system, the tires, upholstery, paint, curtains and top. All of this information must be given, together with the name of the dealer offering it.

When the car comes to the inspection field with this information attached, each item is checked over carefully, and if the findings of the mechanical inspection and appraisal committee are the same as those shown on the card for each particular part covered, three members of the committee affix their signatures to the tag.

If any part does not, in the mind of the committee, come up to the dealer's statement, notation is made and the car sent back for further overhauling. Only two opportunities, however, are given for a car to come within the official O.K. of the inspection committee.

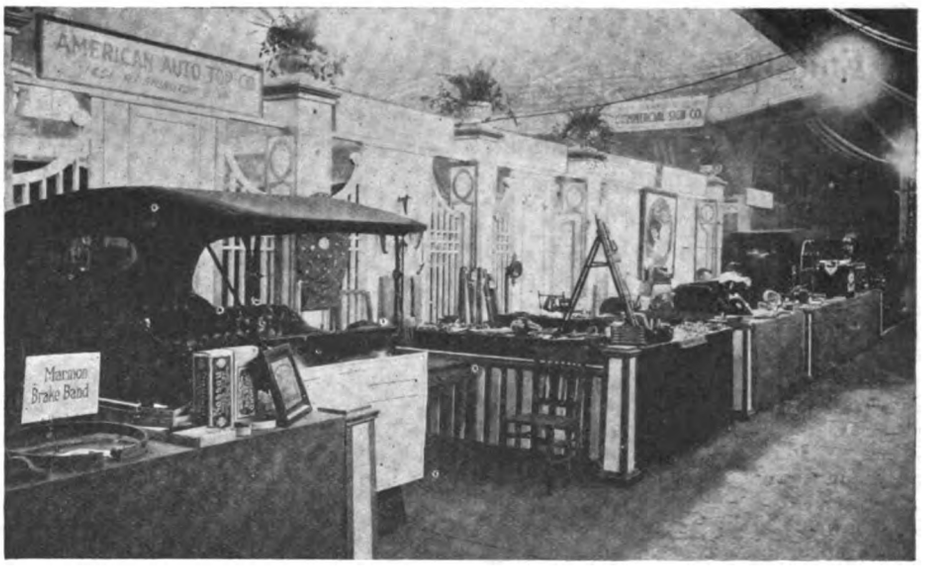
If the lowest cash price which the dealer has placed on the car is not within reason the committee refuses to allow it to enter the show at that price and appraises the car itself, offering the dealer the privilege of showing it at that price or having the car ruled out of the show.

When the officially O.K.'d cars come to the show the white tag is removed, and the green tag showing the price of the car, the make, style, number of cylinders, motor number, owner's name, condition shown by road test, and also the mechanical condition, is sealed to the car in the same way that the doors of freight cars are sealed. A complete record is kept of the serial numbers of these green cards so that there is no chance for substitution, and when a car is sold a sales ticket or a contract with a reasonable deposit must be shown which corresponds with the price listed on the green tag.

As soon as the car is sold a red tag is attached, giving the green tag number and the name of the car, together with a request to the show manager that the car be placed outside the Coliseum, where the exhibitor's driver or the owner will take it away. The lower part of this tag is perforated and forms a call check, which is given to the purchaser. Cars can be moved out and in twice daily.

There are perhaps many places in Chicago and elsewhere where the price of an exchanged automobile or truck can be juggled to influence buying, but the Coliseum and Coliseum Annex are not numbered among them. A man might as well attempt to go into a State Street department store and buy a suit of clothes at a price lower than that at which it was marked as attempt to get an exchanged automobile or truck at the Coliseum or Coliseum Annex during the show at a price lower than that which is marked on the green tag.

Dealers think so well of this plan of inspection and appraisal that it is possible a permanent committee may be appointed by the Chicago Automobile Trade Association, whose duty it will be to make inspections and appraisals throughout the year with the thought of elevating the exchanged automobile and truck business to the plane where it rightfully belongs.



There is even an accessory section in Chicago's Exchange Car Show

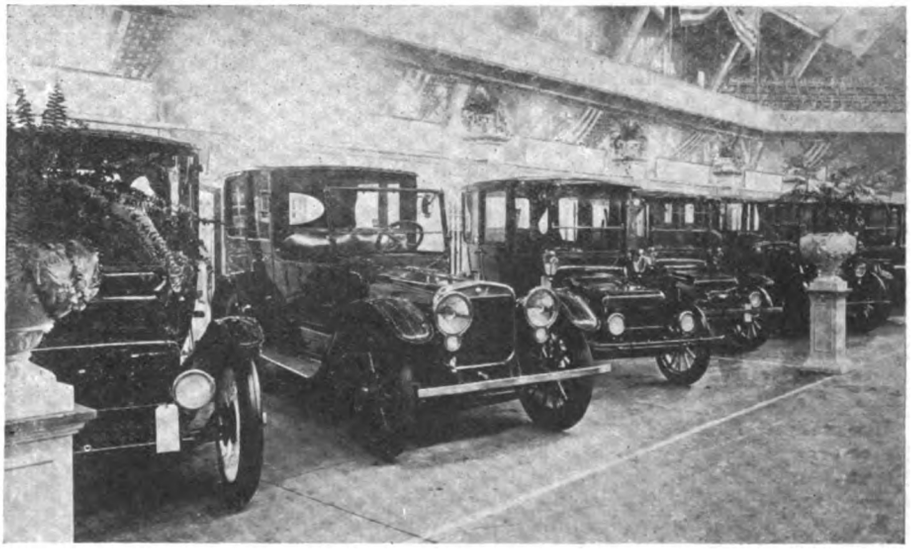


Exhibit of the Anderson Electric Car Co. at the Chicago Exchanged Car Show

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Studebaker Test Cars End 30,000 Mile Drive

Two of the New Sixes and a Four Driven Continuously on Chicago Speedway

CHICAGO, March 29—Thirty thousand miles at 45 miles per hour is the way in which Studebaker's new models were tested out to determine their ability to stand up under long use. This unusual baptism of speed was given the new cars on the Chicago speedway this winter. After their grind the three cars which underwent the test were taken to the Studebaker factory of Detroit and torn down to see what this mileage had shown up in the way of wear.

The entire test was a secret one, only Studebaker men and a few dealers being permitted to witness it. It is announced that the inspection of the cars after the test showed very much less wear than was anticipated.

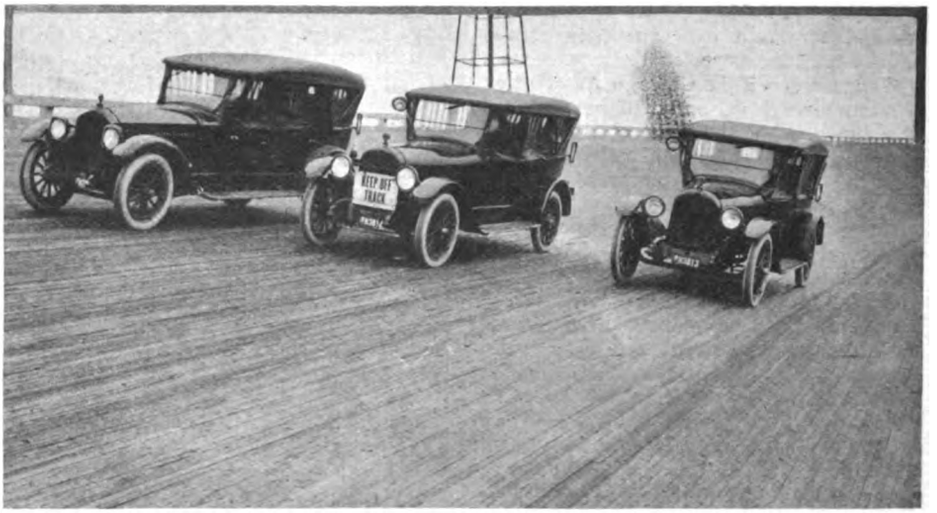
In running day in and day out these cars piled up a mileage equal to anywhere from 5 to 8 years' service in the owner's hands. Most of this work too was done in winter weather, some of it during the great blizzard that struck Chicago early in January.

The Chicago speedway was chartered in the early part of last December and three of the new series 19 Studebakers were started out on the track with a picked crew of drivers, mechanics and pitmen, superintended by F. M. Zeder, chief engineer of the Studebaker Corp. Relief drivers were provided to keep the cars running in spite of everything until their speedometers registered a full 30,000 miles.

Plowing through drifts of snow that had all but obliterated the great 2-mile oval that forms the Chicago speedway and enduring weather that kept the mercury around 17 degrees below zero for days, the drivers of the test cars gamely stuck to their task of keeping the cars going. The great blizzard that crippled every transportation facility and buried the city beneath a blanket of snow stopped the cars temporarily, but not for long. Zeder says that after 2 days the crew succeeded in digging their cars out of the drifts and resumed the test, keeping to a daily schedule of approximately about 500 miles.

Before the cars were put on the track, according to Zeder, the experimental cars were driven over the worst mountain roads of Pennsylvania, New York, New England, Northern Michigan and Canada. These road tests consumed about 10,000 miles.

The cars were started on the track December 14. The Big Six finished March 3, the Light Six March 7, and the Four March 12, each completing 30,000 miles. The longest day's run was 731 miles made by the Big Six with the thermometer ranging about 10 degrees below zero.



It was 12 degrees below zero when the photographer snapped this view of the three Studebaker cars on test at the Chicago Speedway

Overland Earnings Top $6,000,000

TOLEDO, April 2—The report of the Willys-Overland Co. and its subsidiaries for 1917 shows a net income, after all deductions, including reserve for taxes, of $8,121,544, equivalent to $3.16 a share on the common stock. This is figured after payment of regular preferred stock dividends. In 1916, the company earned $9,565,718, equivalent to $5.71 a share on the common stock then outstanding. The decrease in actual earnings amounted to $3,444,174.

The net earnings of the company and its subsidiaries, after ordinary deductions and reserve for taxes, increased slightly in 1917, being $10,193,490 as compared with $10,016,420 in 1916. The decrease in net income was due to the writing off of $1,330,798 for depreciation and an increase in interest charges. As the dividends paid on the common stock exceeded the actual earnings after all deductions were made the company drew on its surplus to the extent of $2,318,026. This, with other expenses charged against the surplus, decreased it from $27,596,593 to $24,301,384.

Orders for airplane motors and parts to the present time, amount to more than $12,000,000, and further orders are assured, according to the report of John N. Willys, president. In addition, the company has received an ordnance contract amounting to $15,000,000 and the company has completed negotiations for a munitions contract. Plans have been made for filling truck contracts as another means of counteracting the passenger car curtailment.

Studebaker Producing 40 a Day

CHICAGO, April 2—Conflicting rumors as to the real status of production of the new Studebaker models are set at rest to-day by the statement of a Studebaker official that though there has been considerable delay, new models now are coming through at the rate of 40 a day; this is expected to be stepped up to a rate of 1500 per month before May 1. The production so far has been limited to the small six almost entirely although a few big sixes have been turned out and production of the small fours is just beginning.

Ontario Dealers Organize

TORONTO, ONT., April 1—An association of the automobile dealers in Ontario is being formed here to-day, tomorrow and Wednesday. It is expected that between 100 and 200 will attend the convention. To-day has been devoted to registration. Tuesday there will be discussions of trade subjects. Officers will be elected Wednesday. The jobbing trade will have a session Wednesday. The meeting is being handled by the Retail Merchants' Association of Canada, which has already successfully organized a dozen other trades with local and sectional units, all federated in the one dominion body.

McFarlan To Add Truck

INDIANAPOLIS, April 1—The McFarlan Motor Co., Connersville, Ind., will manufacture motor trucks in addition to cars. The first model to be produced will be a 3½ ton truck. The truck will be worm drive and will be equipped with a special six-cylinder motor to be manufactured by the Teeter-Hardly Motor Co., Hagerstown, Ind. The estimated price of the truck will be about $4,000.

New York State Jobbers Organize

ROCHESTER, N. Y., March 28—The first steps in the organization of the jobbers of New York State into an association were taken here to-day. A meeting of 10 jobbers from up-state cities was held at the Rochester Club under the direction of Field Representative George Fritz of the National Association of Automobile Accessory Jobbers.

Another meeting will be held April 10 for effecting a permanent organization. The temporary chairman is Mr. Owen, of the Chapin-Owen Co., Rochester. The temporary secretary is Mr. Ball, of Joseph Strauss & Co., Buffalo.

Fritz recently returned from Colorado, where 11 jobbers organized as the Inter-Mountain Automobile Accessory Jobbers Association.

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BUY LIBERTY BONDS

Plenty of Gasoline; No Need to Curtail

So Says Mark L. Requa, but Adds That We Must Not Waste —Transportation Needed

CHICAGO, March 30—That there is plenty of gasoline and oil for all proper uses was reaffirmed to-day by Mark L. Requa, director of the oil division of the National Fuel Administration. Director Requa said:

"As conditions stand to-day, there is no immediate necessity for curtailment in the proper uses of gasoline and oil, but that means oil and gasoline must be used carefully and economically. There is none to waste. Oil and gasoline are like the whole war, purely a question of transportation."

This was a part of the fuel director's talk to the Western Oil Jobbers' Association, which has been in convention here, and ended with a dinner last night. The name of the association, during its convention, was changed to the American Petroleum League.

Director Requa laid stress upon the error of placing reliance upon doing business as usual in his talk on "War Service in the Petroleum Industry." He added that business was not as usual, and will not be so long as the war lasts.

"Transportation—Railroad Cars, Engines, Ships—is the crux of the situation. We have the facilities for the production of the oil in any quantities the government and public needs, but we cannot always get it where it is needed."

In discussing the plan of regional distribution of petroleum and its products, which is being worked out, he expressed confidence that whatever the national needs may be, everything that is necessary will be done to meet those requirements.

"If zonal distribution of petroleum products is necessary to supply what the nation needs, zonal distribution will be accomplished. If pooling of tank cars and ships will meet national demand more efficiently, these facilities will be pooled. If well drilling supplies must be allocated, in order to produce the greatest quantity of oil to meet increasing demands, the well-drilling machinery will be allocated. If the petroleum industry or any part of it is so unwise as to engage in profiteering, ways and means will be found to correct that condition."

Effect of gasoline and oil operated engines in the improvement of city transportation was illustrated by Sheldon Clark, chairman of the Legislative Committee of the National Petroleum Association, when he predicted that Chicago would have a population of 10,000,000 by 1950. This growth, he said, would come through better transportation facilities, developed through the use of petroleum.

Petroleum products' effects on the war were brought out in Mr. Clark's statement that "With the expansion of the oil industry we are becoming the king breakers, for without oil the war against autocracy could not be carried to a successful conclusion."

Philadelphia Loan Committee

PHILADELPHIA, April 1—The Philadelphia Automobile Trade Association has divided its Liberty Loan campaign committee into three groups for cars, tires and accessories and it is planned to sell $1,000,000 worth of bonds. By way of stimulating effort ten teams have been appointed in the motor car group. The complete committee follows:

Group A Motor Cars.

A. E. Maltby.....Chairman
W. A. Almy.....vice-chairman

Team 1.

C. R. Cunliffe.....A. M. Pollock

Team 2.

S. Stankowitch.....S. R. Blocksom

Team 3.

O. W. Lloyd.....H. L. Bogardus
F. G. Browning.....J. J. Smith

Team 5

E. W. Browning, Jr.....O. W. Doolittle

Team 6

Benjamin Hoffman.....E. M. Bartlett

Team 7

T. S. Johnson.....H. B. Harper

Team 8

W. G. Herbert.....A. W. Lockwood

Team 9

J. G. Barlett.....N. G. Wilson

Team 10

A. W La Roche.....G. P. Parker

Group B Tires

W. R. Walton.....Chairman
Garfield List.....Vice-Chairman
E. H. Fitch.....Vice-Chairman
F. A. Kissel.....D. D. Yard
S. M. Beatty.....H. D. Worthington
R. L. Warren.....Charles E. Fellows
E. B. Richardson.....T. Y. Sutthan
Harry G. Fittler.....H. E. Elliott
W. F. Metzger.

Group C Accessories

G. R. Shearer, Jr.....Chairman
A. W. Stellwag.....Vice-Chairman
E. B. P. Carrier.....Albert Strelcher
V. A. Petry.....C. H. Walz
N. A. Almang.....T. Scott Evanson
E. E. Smith.....W. J. Little
C. B. Solly.....George L. Carroll
E. Fyfe.....J. H. Nash
W. L. Batt.....S. C. Simon
F. E. Stow.

100 Salesmen in Bond Drive

NEW YORK, April 1—The Liberty Loan Committee of the Automobile Dealers Association is rapidly perfecting its plans for the coming drive. At a meeting held last Friday it was decided to have 100 salesmen make a direct appeal to every member of the trades embraced by the committee, including cars, trucks and accessories, bicycles, carriage and body builders and saddlers. A Brooklyn division of the committee has been appointed, of which Arthur E. Randall, of the Detroit-Cadillac Motor Car Co., is chairman. Other members of the committee are A. D. Corwin (Buick), C. J. Maxson (Reo), C. M. Bishop (Dodge), William H. Kouwenhoven (Locomobile), D. D. Martin (Martin Evans), Frederick W. Brecht, Robert P. Lumley, Charles F. Batt.

American Women Must Release American Men

They Can Do It by Doing the Work of Men—Jobs That Women Best Fit Into

CHICAGO, March 27—Efficiency experts have decided that the time has come for women to do the work of men, and this after an exhaustive study of American needs and resources, according to information presented at the conference on "Labor Problems Under War Conditions" now being held here under the joint auspices of the Society of Industrial Engineers and the Western Efficiency Society.

Taxi drivers, chauffeurs for cars and trucks, factory employees in certain lines of work—to be determined by special study as to factory work woman can enter without harm to herself—as well as elevator operators, waiters and hotel and club porters, Pullman car conductors and porters, office workers—all these must be undertaken by women at once. Boys and girls from twelve to sixteen years old should have jobs part of the time. Enemy aliens should work under armed guards, on roads among other things. That these are necessary was set forth by C. E. Knoeppel, New York consulting engineer and efficiency expert, in his address last night.

That the Government is considering women as workers even in lines which now are classed as military or semi-military occupations was shown in the statements of Miss Florence M. King, president of the Woman's Association of Commerce of the United States. As president of this organization Miss King has had inquiries from the Government as to training women to be inspectors of war materials.

Knoeppel made the first report as a result of questionnaires sent out to 1000 manufacturers, labor leaders, industrial engineers and economic experts. Seventy-five per cent was to manufacturers. The conclusions drawn by him are based on conclusions from this questionnaire and from personal study of the situation. Some of them are that women are needed in industry; that organized labor has nothing to fear from women in industry; that women should have equal pay for equal work; that man power should be utilized to the fullest degree before calling on women in the heavier industries.

"Women in Industry—Replacing Man" was the subject of both afternoon and evening sessions yesterday, and this morning was devoted to a round table along similar lines. Mrs. Joseph T. Bowen, chairman of the women's committee of the Illinois State Council of Defense, had a paper regarding women's work in the war.

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BUY LIBERTY BONDS

Pennsylvania S. A. E. Discusses Absorbers

Has Series of Meetings Dealing With Parts Affecting the Comforts of Driving

PHILADELPHIA, March 28—Should a shock absorber merely retard the motion of the spring on the recoil or should it act both during compression and recoil? This was the question around which centered most of the discussion held at the March meeting of the Pennsylvania S. A. E. Mark H. Landis, of the Landis Engineering Co., read the paper of the evening, which dealt with shock absorbers for automobiles and motor ambulances.

This was the third meeting of a series dealing with the different parts which affect the comforts of driving. The first meeting dealt with springs and the second with tires. At the meeting at which springs were discussed the conclusion was reached that in order to secure the most comfortable riding qualities springs having a low rate of vibration should be used; these springs must be capable of compressing rapidly to absorb jolts, and their action must be modified by some auxiliary device.

Landis in his paper briefly reviewed the development of shock absorbing devices. He divided all of the different devices developed for modifying the action of the spring into three general classes and these into sub-classes.

The three general classes are auxiliary springs which are either of the coil spring or air type, frictional shock absorbers and shock absorbers of the hydraulic or hydraulic and pneumatic type. These different types were taken up in succession and their strong and weak points indicated.

Philadelphia Plans April Rally

PHILADELPHIA, March 28—The latest activities of the Philadelphia Automobile Trade Association include plans for a big get-together rally in April, such as recently was held in the Hotel Adelphia, pushing solicitations for the Third Liberty Loan and working for the compulsory placing of a license tag on each car or truck of a train coming through from factory to distributing point. On this latter point, the association contends that cars in a train of this kind should be allowed to have a sign attached, reading "Car (or truck) in Transit," such cars to run as close together as possible, the first and last car in the train to display regular license tags.

Highway Builds Government Trailers

EDGERTON, WIS., April 1—The Highway Trailer Co., Edgerton, Wis., has been awarded a contract said to involve $450,000 for the construction of trailer trucks for the use of the United States army. The order, it is stated, was placed on a cost plus 10 per cent profit basis and calls for 5, 10 and 15-ton trailers. James W. Menhall, president and general manager of the company, some time ago evolved a new trailer design for airplane transport which is considered far in advance of any vehicle yet built for the purpose.

Nash Releases Quad Patents

KENOSHA, April 1—Announcement comes from the offices of the Nash Motors Co. that it has released the use of all patents, drawings and engineers to the Government for the duration of the war in order that the manufacture of Nash Quads for army service may be facilitated. As soon as the company released the rights, the Government awarded contracts for 2000 Quads each to Paige and Hudson in Detroit and to National in Indianapolis. Transmissions and some other parts will be manufactured by still other concerns to be supplied to the contractors.

Scrap Metal Prices

NEW YORK, March 30—Following are the prices paid by New York dealers for scrap metals during the past week. They are from *Iron Age:*

	Cents per lb.
Copper, heavy and crucible	23.50
Copper, heavy and wire	23.50
Copper, light and bottoms	21.00 to 21.50
Brass, heavy	16.25 to 16.50
Brass, light	12.25 to 12.50
Heavy machine composition	23.75 to 24.00
No. 1 yellow rod brass turnings	13.50 to 14.00
No. 1 red brass or composition turnings	19.00 to 20.00
Lead, heavy	6.75
Lead, tea	5.75
Zinc	6.00

Doble Company Plans 50 Steam Cars a Month

Buys All the Assets of General Engineering Co. Which Formerly Owned Doble Patents

DETROIT, March 28—The Doble-Detroit Steam Motor Co. has purchased the assets of the General Engineering Co., former owner of the Doble patents. The company will issue $1,500,000 of stock to five voting trustees, who will issue the voting trust certificates for the same amount to the General Engineering Co. The voting trust certificates which, by agreement, will not be divided until a future date, will be in full payment for all the patents, rights, good will and assets of the General Engineering Co. Two of the voting trustees will represent the General Engineering Co., and three the Doble-Detroit Steam Motors Co. The former company will, in due course of business, be dissolved. There are no royalties to be paid by the Doble for either patents or licenses.

The company has advanced its production plans and deliveries of standard cars, now in process of manufacture, will start in April.

It is planned to deliver fifty cars during that month and the early part of May, and production will increase until full capacity has been reached. The average monthly output will be 1000 trucks. The added directors of the company are: Kirk B. Alexander, who has also been made vice-president; William J. Fisher, Harrington E. Walker and Harold C. Johnson. Other directors will be added until the full membership of fifteen has been attained.

Concrete Roads Would Save Their Cost

Figures for Tractive Effort Vary Widely with Road Surface

THE Packard Motor Car Co. has recently made some tests to determine the relative values of different roads, as regards resistance to tractive effort. It has been found that unsurfaced concrete offers a resistance of 30 lb. to the ton, surfaced concrete 50 lb., gravel 82 lb. and dirt roads 99 lb. The experiment was performed with a Packard 3-ton truck carrying a capacity load and operating at a speed of 12 m.p.h. Taking the unsurfaced concrete as standard, the truck will make 7.2 miles per hour over surfaced concrete, 4.8 miles per hour over gravel, and 3.6 miles per hour over dirt roads. This makes a relative cost of $0.167, $0.194 and $0.207 per ton mile in the last three instances.

A computation has been made showing that if all roads traveled were gravel as compared with dirt, the annual saving in operating America's 400,000 motor trucks would amount to $70,200,000; if concrete is compared with gravel $167,400,000; and if concrete instead of dirt $237,600,000.

Going through other data collected from practical results with motor truck operation, a traffic census on the Cleveland-Akron highway proved that goods were being hauled over that road on motor trucks equivalent in tonnage to one freight carload an hour. This has since been increased substantially.

The Cleveland-Akron-Canton Transfer Co. operating a fleet of 13 Packard trucks will accept shipments in Akron late in the afternoon for delivery in Detroit the following morning.

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Return Loads System Takes Strong Hold

Detroit, Chicago, Cincinnati, Cleveland, Buffalo and Other Cities Form Bureaus

WASHINGTON, March 28—The return loads system of motor truck transportation is taking hold in many sections of the country. St. Louis is organizing a truck organization to handle the return loads business for St. Louis and surrounding country within a radius of 100 miles under the direction of the St. Louis Chamber of Commerce. The State Council of Defense of Illinois has appointed an active committee to work with the chambers of commerce and commercial organizations throughout the state to establish return loads bureaus. Numerous inquiries are coming into the offices of the Highway Transport Committee asking for information about the establishment of return loads bureaus. Detroit, Chicago, Cincinnati, Cleveland, Youngstown, Pittsburgh, Buffalo and a number of other cities are already establishing some motor truck transportation, although very few as yet have created return loads bureaus.

The above information was brought back to Washington by Frank E. Williamson of the Highway Transport Committee, who addressed the National Industrial Traffic League in Chicago on March 20, where he explained the objects of the committee and its work establishing return loads bureaus in co-operation with chambers of commerce and other commercial organizations in the territory north of the Ohio River and east of the Mississippi to the Atlantic seaboard. The National Industrial Traffic League is composed of the principal shippers and manufacturers of the United States, and Mr. Williamson's address has resulted in numerous favorable inquiries from league members.

The Highway Transport Committee is publishing a pamphlet which will be ready for distribution early next week and which will explain in detail how return loads bureaus can be established and maintained. The pamphlets will be distributed to all chambers of commerce, public service commissions, state highway commissions and municipalities. Pamphlets can also be obtained by application to the Highway Transport Committee, Munsey Building, Washington, D. C.

The Highway Transport Committee has received word of organized effort by the Ohio branch Council of National Defense to supplement steam and electric railroad transportation by motor truck transport.

To Promote Motor Transportation

KANSAS CITY, March 28—The Kansas City Automobile Club is starting this spring a definite line of work to promote motor transportation in the Kansas City territory. Frank A. Davis, chairman of the Road Committee, is organizing his forces from among the membership to inspect all the roads leading to population centers within 100 miles. A map of these roads has been made, which provides for two routes to each of the centers designated. When the Inspection Committee returns its report, the material will then be at hand for the actual promotion of freight traffic on these lines and for the promotion of road improvement. The entire territory is to be roused as far as possible to the necessity of using these main arteries, and the agitation is to be directed toward the improvement by the localities to handle freight traffic.

A preliminary report on the road situation declares that there is not a single 365-day road 50 miles in one continuous stretch in any direction from Kansas City. The report states that there is a possibility of an embargo this summer on shipments of freight for less than 50 miles with the further possibility that the limit will be made 100 miles. In view of this, the automobile club officers believe that it is essential to get the roads leading into the population centers improved as quickly as possible, and the business men of the district aroused to the necessity of making ready for handling freight traffic over such roads.

Coming! Coming! Coming!
In 21 Days

Not the circus!
Not a new car!
Well, what is it ten?
It's the Summer Merchandising Number of Motor World.
It will be out April 24.
It will give you plans and ideas for summer business.
It will tell you how to face our NEW conditions.
It will tell you a lot of things that will mean money to you. Watch for it!
Order your extra copies NOW.

Franklin Production Increases 135 Per Cent

SYRACUSE, March 28—The H. H. Franklin Mfg. Co. reports an increase of 135 per cent in production during the past year over 1916. During 1917 the company manufactured 9000 cars as compared with 3800 for the year previous.

Oakland Dealers Drive-away

DETROIT, March 28—Sixteen Oakland dealers left Detroit yesterday over the road for Buffalo. Upon reaching that city they will return to the Oakland factory at Pontiac and leave Detroit again Friday with sixteen more cars for Buffalo.

Automobile Import Ban Arouses Winnipeg Trade

Dealers' Association Wires Every Legislator Regarding Resolution of Protest

WINNIPEG, CANADA, March 28—The Winnipeg Motor Trades Association is not letting the grass grow under its feet with reference to the rumor that the Government will ban automobile importations as a war measure, and the executive committee has taken prompt action in the matter. A meeting of the members of the association was called and a strong resolution drafted protesting against the proposal and setting forth briefly the consequences that would be entailed. This resolution was telegraphed to every Manitoba member in the Ottawa House and to every Senator from the West. A copy was also sent to Western associations affiliated with the Manitoba Motor Trade Association, who in turn will take similar action.

Winnipeg Dealers' Personnel

To further strengthen their case the local association has provided A. R. Leonard, its Ottawa representative, with full information as to the Motor Trades Association personnel in Winnipeg and the Province of Manitoba. Here, in brief, is what Mr. Leonard will lay before the Government:

Winnipeg dealers have $9,000,000 invested.

They employ 900 men, with an annual payroll of more than $1,100,000.

The duty on imported cars, delivered in Winnipeg, in 1917, totalled more than $900,000.

Annual sales approximately $20,000,000. These figures do not include those of the Overland agency, whose returns can only be obtained at Headquarters and will be submitted to the Government by their own representative.

The above figures do not include any of the 700 dealers in the rest of Manitoba, whose average investment is $5,000, each of whom employs four or five men.

Monroe Stepping Up Production

PONTIAC, MICH., March 28—The Monroe Co. is gradually stepping up production to normal again through the use of coal cars for shipping and driveaways which are taking away a considerable number of cars daily. The railroad embargo and the condition of highways have held up production to a large extent for the past 90 days.

Baker Electric Advances

CLEVELAND, March 28—The prices of the Baker R. & L. electric cars will be advanced April 1. The five-passenger brougham type, rear drive, will be increased $150 up to $3,150, and the five-passenger brougham type, double drive, will advance $200, bringing this model up to $3,400. This increase is necessitated by the advance in labor and materials.

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Tractor Demonstration Covers All Farm Work

Educational Exhibit Scheduled for Stockton, Cal., April 17-19—The Rules

SAN FRANCISCO, March 28—What is described as educational tractor demonstrations will be held under the California Tractor and Implement Association on the University farm at Davis, Cal., April 17, 18 and 19. The demonstrations and expositions will be entirely educational in character, and will be immediately under the supervision of the Society of American Agricultural Engineers.

The list of the different tractors that are to be demonstrated has not yet been made public. The rules covering the demonstration provide for plowing for 1½ hr. each afternoon, harrowing for 30 min. and other activities for 1 hr. The mornings will be given over to private demonstrations, and in these all plowing must be at a depth of 8 in.

The rules provide that not more than one tractor of a size and model will be permitted to operate during the public demonstration. Those companies or individuals demonstrating must be members of the California Tractor and Implement Association. Some of the rules governing the demonstrations follow:

Boost "Buy Now" Movement

EAU CLAIRE, WIS., March 28—Six motor car and accessory dealers of Eau Claire, Wis., with the co-operation of two local manufacturers, are publishing a series of nine business articles written by E. LeRoy Pelletier, Detroit, and originally written for and published by the Milwaukee Automobile Dealers, Inc., during its annual show in January. The series is designed to build up retail business by pointing out the fact that there will be a shortage of cars in 1918 and that purchases should be made at once lest there be disappointment. At the same time the timid intending purchaser is reassured that it is perverted patriotism to put off buying anything he needs or can afford, particularly so essential an article as a motor car. The following concerns stand sponsors for the advertisements: Union Auto Co., Tanberg Auto Co., Northwest Wisconsin Overland Co., Kinney Motor Car Co., Taylor Motor Car Co., Clemon's Auto Supply Co., United States Gearshift Co., and Gillette Rubber Co.

Used Cars Sell Well in St. Louis

ST. LOUIS, March 28—The week just closed is reported to be one of the best weeks in used-car sales in St. Louis. A dozen firms so report. This is especially notable in that it was the week following the used-car show. Sentiment now is in favor of an annual used-car show.

Little Nebraska Town Holds Successful Show

Holdrege, with Population of 4,000, Doubles Last Year's Attendance

HOLDREGE, NEB., March 28—That a large city setting is not essential to staging a successful automobile show has been demonstrated by the two annual shows held at Holdrege, Neb. Co-operation of the dealers and of the various business interests of the city is here shown to be the real essential.

This second annual show closed March 23, after four days of success. More than 7000 persons saw the cars, trucks and tractors. This was double the attendance of the first show held a year ago.

Holdrege is a city of nearly 4000 persons, but it boasts a community spirit that gives it advantage of many a city of several times the population. This community spirit made possible the erection at Holdrege of the second largest auditorium in Nebraska.

Passenger cars were displayed in the main buildings of the new auditorium, while a truck and tractor display was held in a canvas covered annex. The total floor space was 23,000 sq. ft.

From a publicity standpoint the show has done more for Holdrege than any

Rules and Regulations of the California Tractor Demonstration

1. In the afternoon of each day public demonstrations will be held, divided into three periods as follows:

Plowing	1:30 to 3:00
Harrowing	3:00 to 3:30
Stunts	3:30 to 4:30

Private demonstrations will be held in the mornings on the portion of the field allotted for that purpose, also during the "stunt hour." Each public and private allotment shall be entirely under the control of its owner, except that all plowing must be done to a depth of at least eight inches, measuring the furrow wall. Re-working of ground already plowed in public demonstrations will be permitted on Thursday and Friday mornings and Wednesday, Thursday and Friday afternoons between 3:00 and 3:30.

2. Not more than one tractor of a size and model will be permitted to operate on the field during public demonstration. Extra equipment of slight variation in design are not to be interpreted as distinguishing different size or model. During the public demonstration no tractor will be permitted in operation in any other part of the field.

3. Size of land allotted to each tractor exhibitor for private demonstration and for public demonstration will be determined by the average width of plows which they undertake to pull.

4. All exhibitors will be allotted land in the same field or adjoining fields during each day's demonstration. (It appears on this date, March 16th, that each exhibitor will be allotted one field for private demonstration and one field for public demonstration. The private field will serve for special demonstrations during the mornings, sufficient area being reserved to plow in the public demonstration Friday afternoon. The field allotted for public demonstration will be half plowed on Wednesday afternoon and the other half on Thursday afternoon. This cannot be definitely determined until all entries are in.)

5. All plows on any given gang must be set at the same depth and kept there during the demonstration period. This depth must be at least eight inches. Plows found operating otherwise will be ordered from the field for the balance of the day's work.

6. In all public demonstrations the motor of tractor must not be run at more than 10 per cent above its catalog speed.

7. Positions on field first day will be arranged by lot. Each exhibitor will be required to finish his land daily in a workmanlike manner and assist in plowing the end lands as directed by the general manager.

8. Each field will be surveyed and staked ready for each day's demonstration.

9. Each tractor shall bear a placard showing the brake horsepower of the engine, the revolutions per minute, the plowing speed in miles per hour, and the kind of fuel used and its Baume test. Tractors using more than 5 per cent gasoline shall be classed as burning gasoline and be so placarded.

10. All tractors on the demonstration field belonging to one exhibitor must be kept on or along the land allotted him for that day's demonstration, until the hour designated by the management for returning to headquarters.

11. No machine will be allowed to operate with special equipment other than designed for practical use with same. No spectacular methods will be permitted on the part of salesmen or others to attract crowds. The demonstration must speak for itself.

12. Each tractor exhibitor will have the privilege of burning any kind of fuel he desires but no one will be permitted to burn fuel of a higher gravity test than that used by his competitor burning the same kind of fuel. All exhibitors will be required to obtain fuel from source designated by general manager.

13. Manufacturers will be privileged to make turning tests or tests of drawbar pull of their tractors during any day of demonstration, but if submitting to these tests, which will be conducted by the University of California, they thereby agree that the results may be made public. These tests must be made in forenoons, or following public demonstrations afternoons.

14. The interpretation and enforcing of these rules shall be left to the field manager of the demonstration under the direction of the committee.

15. Each company exhibiting at this demonstration shall appoint one manager who will be expected to report to the general manager not later than 8:30 o'clock each morning for instructions and information regarding the day's work. This manager of exhibits will be held accountable for the work of his company, and no instructions will be issued to any one else, nor will requests, instructions or complaints be recognized from any one but this exhibit manager. He shall wear a badge furnished him specifying his being official exhibit manager.

16. Each exhibitor will be expected to keep plows, tractors, etc., around his tent arranged in first-class order, and the land allotted to him for exhibiting purposes free from circulars, rubbish, etc., such as will be distributed around headquarters daily. They will also be expected to use care at all times in operating machinery in respect to its safety for all visitors. The management will appreciate co-operation of these exhibit managers in all matters.

17. Each entrant will sign the rules and hereby agrees to live up to the rules and co-operate with the committee in every way to make the tractor demonstration a success.

18. No companies or individuals are eligible to demonstrate unless they are members of The California Tractor and Implement Association.

19. It shall be against the rules and regulations for any tractor manufacturer to put on an exhibit on the street corners of the city where the tractor demonstration is held, or to do any other thing in the way of exhibiting machines that would detract from the tractor demonstration and the regular established exhibits in the tents.

20. Exhibitors of machinery to be driven by belt power will be permitted only in the exhibit tent, not in connection with the field demonstration or exhibitors' headquarters tents in the field.

21. During Saturday the members of the Association will come to the campus of the university as guests. A plot of ground will be given to the association, which plot of ground will be at the disposal of the Demonstration Committee. The members of the association are individually bound to comply with the one rule that the university has made—i. e., there shall be no sales efforts of any sort on the property of the University of California on Saturday. All exhibiting members are obligated to see that their entire sales force observes this rule. It will be permissible to take the names and addresses of prospective customers, but it will be against the spirit of this regulation to go further. All exhibiting members are expeced to appear in the parade on Saturday afternoon, with every available tractor.

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BUY LIBERTY BONDS

other affair, such as festivals, trade weeks, conventions. As a large part of the attendance is from out of the city, the show is naturally an immediate stimulant to all the merchants.

The eight Holdrege dealers enter into this affair with enthusiasm, bringing to the front all the "pep" and resources of their various organizations. As the show results in a number of sales, immediate and future, this enthusiasm regarding this event never abates. To make each show excel the preceding is the plan of this dealer group.

Reorganize American Die Casting

DETROIT, March 28—C. D. Cutting, J. H. Armstrong, R. W. Smith, and F. D. Tobin, of the C. A. S. Engineering Co. of Detroit, have purchased an interest in the American Die Casting Co. of Indianapolis, together with E. Barton Hall, formerly director of purchases at the Curtiss Aeroplane Co., Buffalo. The Indianapolis company has been completely reorganized, enlarged, and the capacity tripled. The company makes a specialty of Fahrig bearing metal. The officers of the company are: President, Lawrence Olson; treasurer, E. Barton Hall; secretary, C. D. Cutting, and assistant treasurer, W. L. Jenks.

Overland Prices Raised

TOLEDO, April 1—The Willys-Overland Co. has increased the prices of both passenger cars and trucks from $35 to $100. The new prices which are effective April 1 follow:

Model 90	New Price	Old Price
Touring	$850	$795
Roadster	835	780
Country Club	875	840
Sedan	1340	1240
Chassis	800	710
Model 85 B-4		
Touring	$985	$930
Roadster	965	915
Sedan	1485	1485
Coupe	1285	1285
Chassis	880	845
Model 85 B-6		
Touring	$1195	$1130
Roadster	1195	1115
Sedan	1620	1620
Coupe	1420	1420
Chassis	1110	1045
Model 88-4 (Knight)		
Touring	$1625	$1525
Sedan	2325	2225
Coupe	2275	2175
Limousine	2425	2325
Chassis	1475	1375
Model 88 (Knight)		
Touring	$2100	$2000
Varsity	2550	2550
Sedan	2800	2700
Coupe	2675	2675
Limousine	2900	2800
Town Car	2900	2800
Chassis	1950	1850
Model 89—Willys Six		
Touring	$1450	$1365
Club Roadster	1450	1365
Sedan	1330	1245
Commercial Cars.		
Model 90 Express	$840	$785
Model 90 Panel	865	810
1200-lb. Chassis	915	880
1200-lb. Express	975	930

Bridgeport Already Plans Its 1919 Show

First War-time Exhibit Entirely Successful—Cars and Trucks Sold Freely

BRIDGEPORT, March 28—The success of the sixth Bridgeport show, which opened Monday, March 25, can best be judged by the fact that Manager Benjamin B. Steiber has received from 50 per cent of the exhibitors orders for reservations for the 1919 exhibition. Sixty automobiles, evenly divided between passenger and commercial cars, had been sold when the fourth day of the show ended.

This year, as in others, lack of space confronted the management, and the State Street Casino was engaged for the truck and tractor exhibitions, while the armory was devoted to showing the passenger models. In all there were 58 exhibitors, a considerable increase from the number of exhibitors for 1917. The attendance was figured as being about 15 per cent better than last year. The general consensus of opinion was that war has not dimmed the enthusiasm of the public or exhibitors, for there were but few who were dubious about the success of the show project.

In the aggregate the floor space of the show was 28,000 ft. The armory, which was leased to the managers of the show by the Connecticut Home Guard, which omitted drills of an entire regiment for the week, is slightly larger than the Casino. Both buildings were beautifully decorated with flags and bunting of the colors of our Allies, and a feature of the decorations at the armory was a big American flag devised from hundreds of red, white and blue incandescents.

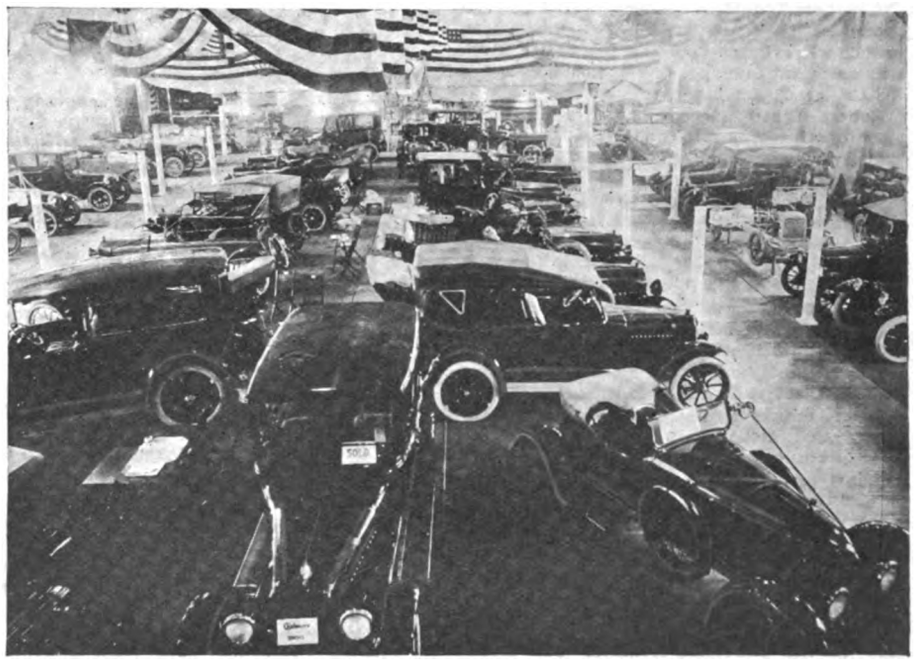
It is admitted that a large percentage of the dealers entertained doubts about the success of the first war-time show here, but it can now be said that practically all are well pleased with the undertaking. All of the local newspapers carried automobile editions especially featuring the show, and the amount of advertising was large.

Reo Drops 2-Tonner

LANSING, March 28—The Reo Motor Car Co. will discontinue the production of its 2-ton truck. This move was necessitated because of the contract it has with the Government to make tracklayer tractors, and until the completion of that contract the company will make only one model of truck, that being the ¾-ton speed wagon. It is reported that Reo will discontinue the heavy model for the period of the war, but if the Government needs are taken care of before that time the company will probably resume production. The price of the ¾-ton truck after April 1 will be $1,275 instead of $1,175; the price of the chassis will advance $75, making the new price $1,175.

10 Per Cent Dividend for Montreal

MONTREAL, March 28—As a result of the recent motor show held under the auspices of the Montreal Automobile Trade Association a 10 per cent dividend was declared, after a 10 per cent rebate on space rentals had been made to exhibiting shareholders.



Here is Bridgeport's sixth show, but its first war-time show

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

O. S. Tweedy, formerly manager of branch sales of the United States Tire Co., will become vice-president and general manager, May 1, of the L. A. Young Industries, Inc.

Daniel P. Egan, for eight years associated with dealers at Madison, Wis., but more recently with the Frint Motor Car Co., Milwaukee, distributer of the Oldsmobile, has returned to Madison to become sales manager of the Lawson-Hokanson Co., Buick distributer in western Wisconsin.

Paul G. Bender, for several years on the staff of the Packard-Missouri Motor Co., St. Louis, has resigned to become sales manager for the Econometer Co., makers of a device for measuring fabrics.

W. A. Mylet is now manager of the Dixie Flyer department of the Neustadt Auto & Supply Co., St. Louis.

L. Rubenstein, St. Louis, is now sales manager for the Commercial Accessory Manufacturers' Agency, 3132 Locust Street, St. Louis.

George T. Vigar, formerly of the Reifling-Vigar Motor Co., Ford agents, St. Louis, has joined the truck staff of the Brandle Motors Co., St. Louis.

Frank A. Hayes, formerly engineer with the Willys-Overland Co., Toledo, has been appointed chief engineer of the Willys-Overland, Ltd., of Toronto, Ont.

Henry C. Limbach, former production manager of the Zenith Carburetor Co., Detroit, is now equipment engineer of the Strong, Carlisle & Hammond Co., Detroit.

W. Whitney Slaght has been appointed experimental engineer of the Pierce-Arrow Co., Buffalo. He was a former student at the University of Michigan.

Raymond V. Morris has been appointed general manager of the Savage Tire Co., San Diego, Cal. He was formerly connected with the Curtiss Aeroplane Co., Buffalo.

N. J. Fitch has been appointed manager of the Detroit branch of the Bearings Service Co., succeeding E. G. Volker, who has been promoted to manager of the New York branch. Previous to coming to Detroit Fitch was assistant manager of the Bearings Service Co. at Cleveland.

Robert Walsh, former advertising manager of the Maxwell Motor Co., Inc., has joined the Fred M. Randall Co., Detroit, advertising agents.

A. C. Faeh, who resigned as advertising manager of the Baker R. & L. Co., Cleveland, to become sales and advertising manager of the Osgood Lens & Supply Co. of Chicago, has returned to his former position.

W. J. Carr, for 2 years purchasing agent of the Falls Motor Corp. of Cheboygan Falls, Wis., is now in the purchasing department of the Aluminum Castings Co.

L. A. Closter, Chicago, has been appointed district manager for the Federal Motor Truck Co., Detroit, in Michigan, Indiana, Ohio, Kentucky, West Virginia and western Pennsylvania. Closter was associated with E. C. Brady, Cole distributor in Chicago, and later with the Centaur Motors, Inc.

Gould Allen, sales manager of Fuller & Sons, Kalamazoo, has tendered his resignation to take effect about April 1, and will become manager of the Detroit office of the Wetzel-Hall Co. Allen formerly was secretary of the Harrison Radiator Co., Lockport, N. Y., and for 5 years was sales manager of the Covert Gear Co., Detroit.

R. B. Bowman, formerly with the White Co., Cleveland, has been appointed district manager for the Central West territory.

Joseph G. Fitzsimons, president of the Carolinas Auto Supply House, Charlotte, N. C., has joined the aviation section of the navy.

C. L. McClellan, Hartford, Conn., has resigned from the sales force of the Universal Auto Co., Franklin, Hupmobile and Diamond T distributors, and accepted a similar position with the Colonial Automobile Co., Studebaker dealer.

F. D. Trapp, Hartford, Conn., has been assigned as sales manager of the New Haven Packard branch just opened, having been transferred from a similar position with the Hartford branch. Truck Sales Manager Flower of the Hartford branch also goes to New Haven. Howard D. Graves becomes sales manager of the Hartford branch.

F. E. Provost, comptroller of the Hartford, Conn., branch of Willys Overland, Inc., has resigned and accepted a position of like nature with the Aetna Life Insurance Co.

R. G. Remington, formerly of the United Truck Co., Grand Rapids, Mich., has joined Russell P. Taber, Inc., Hartford, Conn., and has been assigned to the truck department.

E. A. Adamas, Hartford, Conn., has joined the Capitol City Auto Co., Hartford, and will handle Sandow motor trucks. He was lately connected with the truck department of S. A. Miner, Pierce-Arrow distributer.

F. L. Thorpe, Hartford, Conn., resigned recently from the Hartford branch of The Packard Motor Car Co. of New York, and has joined the Winton sales section of The Capitol City Auto Co., Hartford.

Charles L. McNulty has resigned as district sales manager of the Saxon Motor Car Corp., Detroit, effective April 1. He will be connected with the Oklahoma Truck Corp., Oklahoma City, as secretary, treasurer and general manager. This is a new organization which will distribute Bethlehem trucks throughout the State of Oklahoma and in the Wichita, Kan., territory with the branch house at Wichita.

W. Dewees, formerly purchasing agent of the Saxon Motor Car Corp., Detroit, has become affiliated with the Trussed Concrete Steel Co., of Youngstown, Ohio.

Thos P. Myers, who for the past year and a half has been vice-president and sales director of the General Engineering Co. and the Doble-Detroit Steam Motors Co., Detroit, has resigned and will probably go into government work.

Elmer E. Cadwell has been appointed assistant advertising manager of the Ajax Rubber Co. of New York. He was formerly in the advertising department of the Michelin Tire Co., Milltown, N. J., and the Willys-Overland Co., Toledo, and the Canadian branch in Toronto.

E. H. Shepard has been appointed manager of the Detroit branch of the Stromberg Motor Devices Co., Chicago, succeeding George H. Hunt. Shepard has been sales engineer for the Stromberg company in Detroit for the past five years.

E. Preisendanz has been elected president of the newly-formed organization, the Camden (N. J.) Auto Trades Association.

W. O. Rutherford, sales manager of the B. F. Goodrich Co., Akron, has been elected vice-president of the company.

H. M. Adams has been appointed Eastern district manager of the Willard Storage Battery Co., Cleveland, to succeed A. W. Sayer, who has been recalled to the main office. Adams will have headquarters in New York.

Cassius F. Baker has been appointed supervisor of agencies of the Templar Motors Corp., Cleveland.

C. E. Williams, formerly assistant sales manager of the Velie Motors Corp., has become associated with the Selden Truck Sales Co., Rochester, N. Y., in the same capacity.

Henry T. Myers, for three years sales manager of the Truck division of the Studebaker Corp. of America, Detroit, has returned to Boston as branch manager of the Boston territory to succeed George N. Gordon. Myers occupied this position before he went to Detroit. He will continue as manager of commercial car sales.

George L. Moscovicz, who has been doing special work for Mitchell Motors Co., Racine, for some time has been made advertising manager, succeeding F. K. A. Kapp, resigned.

Edward Hutchins, formerly supervising engineer of the Federal Rubber Co., has been elected vice-president of the Gillette Rubber Co., Eau Claire, Wis.

W. T. Edwards, formerly with the battery division of the Intermountain Electric Co. of Utah, has been elected president and general manager of the Edwards-Warden Motor Parts Co., Salt Lake City.

James E. Kepperly has been appointed general manager of the Curtiss Aeroplane & Motor Corp., Buffalo, succeeding William A. Morgan. Kepperly has also been elected vice-president, a member of the executive committee and a voting trustee. He has been associated with Willys interests for some time, and is vice-president and counsel of Willys-Overland, Inc.

A. B. Walton, formerly sales manager of the Master Carburetor Co., Los Angeles, has received the commission of captain in the ordnance department.

O. S. Comer has been promoted to the position of assistant to the foreign sales manager of the J. I. Case T. M. Co., Racine.

W. E. Perrine, production manager of the Standard Parts Co., Cleveland, has been promoted to the position of assistant general manager and chairman of the executive board. He will carry on the work of Christian Girl.

W. A. Cluff, who for some time has been auditor of the Mason Tire & Rubber Co., has been elected to the board of directors. He has also been appointed first assistant treasurer.

C. J. E. Leach has been promoted manager of the New York State branch of the Massey-Harris Harvester Co., Batavia, N. Y. He was formerly manager of the Kansas City branch.

T. S. Gamble, former advertising manager of the Maxwell Motor Co., Inc., has been appointed a lieutenant in the aviation department of the army. He is now at the Ohio State University at Columbus.

H. Montgomery has been appointed purchasing agent for the munitions department of the Harroun Motors Corp., Wayne, Mich.

Roy Coffeen has succeeded M. L. Bridgeman as manager of Willys-Overland, Inc., distributer at Cleveland. Bridgeman has joined the Neighbors Auto Co., Dodge distributer.

W. L. Agnew, former advertising manager of the Chalmers Motor Co., has been placed in charge of the wholesale department for the distributers of Liberty cars at Savannah and Atlanta.

Charles A. Clark has been appointed district sales manager for the Acason Motor Truck Co. and will have charge of Eastern territory with headquarters in Boston. Clark was for some time connected with the Knox Tractor Co., and more recently with the Gramm-Bernstein Co. of Lima, O.

R. T. Hodgkins, general sales manager of the Studebaker Corp. of America, has sent his resignation to the company, effective April 1. He has not announced his plans.

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BUY LIBERTY BONDS

Harry L. Bill has been appointed general factory manager of the Winton Motor Car Co., Cleveland. He was formerly factory manager of the Chalmers Motor Co. and more recently manager of the experimental station plant of the aircraft board at McCook Field, Dayton.

R. L. De Lisser is secretary and Eastern sales manager of the J & D Tire Co., Charlotte, N. C. In Motor World last week it was stated that he was Eastern sales manager alone.

White Earns $3,800,308

CLEVELAND, April 1—The White Motor Co. earned net profits of $3,800,308 in 1917, after the deduction of income and excess profits taxes. This is equal to 24 per cent of the $16,000,000 outstanding capital stock, approximately the same as in 1916, when there were no taxes to deduct. Assets amount to $25,573,537, an increase of $4,366,757 over 1916, most of which has been added to the surplus. Current liabilities of 1917 are only $4,057,236, leaving a net working capital of $20,244,301.

JOBBERS PROPOSE ACCESSORY SHOW IN OCTOBER

CHICAGO, April 2—The possibility of an independent accessory show in October, separate from that in connection with the National shows and not in any way connected with the September accessory show scheduled for Chicago, is suggested in a bulletin which is being sent out this week by Commissioner William M. Webster, to members of the National Association of Automobile Accessory Jobbers. The bulletin states that the board of directors of the association by practically unanimous vote will recommend at the Virginia Hot Springs convention that the date of the annual meeting be changed from January to the last week in October. The change is made because a January meeting brings the following meeting into May, which is a bad time for jobbers to leave their businesses. It is suggested that an accessory show be held in conjunction with the October meeting and if possible under the same roof. Commissioner Webster has not applied for sanction from the Motor & Accessory Mfrs. Assn. He states that he has obtained options on several places for the proposed combined convention and accessory show. The matter will be brought up for ratification at the Hot Springs convention.

2200, Not 220, Scripps

DETROIT, April 1—In an item which appeared in Motor World last week it was stated that the Scripps-Booth Co. has orders on its books for 220 cars. Through a typographical error one cipher was omitted, the correct figure being 2200 cars.

Settled Weather Aids Dealers' Driveaways

Increasing Numbers Invade Detroit —Long Trips Are Being Started Daily

DETROIT, March 30—Settled weather has improved the condition of roads and large numbers of dealers are coming here to drive away cars. Even the ordinary dirt roads are in good shape. These bettered road conditions have somewhat decreased the cost of driveaways.

The Hupp Motor Car Co. reports that the expense of driving twenty cars to St. Louis was less than the freight cost of $34 per car. The trip was completed in 2 days. The Hupp company has during the past week sent overland one hundred and fifty cars; fifteen cars went to Indianapolis; three to Wabash, Ind.; eight to Urbana, Ill.; two to Hardin, Mo.; six to Little Rock, Ark. These are only a few instances.

The Paige-Detroit Motor Car Co. averages forty cars daily for driveaways. Some of the more notable driveaways follow: forty-five went to one distributer in Birmingham, Ala.; twenty-eight started for Rutledge, Ga., and ten were taken by a Des Moines distributer.

Exclusive of government trucks Packard is driving away, it sent overland since December 12½ per cent of its passenger car production and 21 per cent of the truck output.

The driveaways of the Reo Motor Car Co. are increasing steadily. Where 8 per cent of the company's production was sent away 3 weeks ago by driveaway, the percentage now is 28 per cent. A train of twenty-six speed wagons bound for Atlanta together with ten speed wagons and passenger cars for Charleston were piloted by a Cincinnati dealer as far as his city. He was also taking four cars for himself.

Dodge Brothers drove away 1500 cars this week. Fully 50 per cent of the cars driven away go to points within a 300-mile radius. Many dealers, mainly around New York City, Boston and other eastern cities, are maintaining three teams of five men each. These teams are constantly kept busy going from their cities to the Dodge Driveaway Garage. While one team is leaving here another is arriving at its destination and the third is on the way back.

Dealers Buy Studebaker Branches

SAN FRANCISCO, March 28—Effective March 15, the C. N. Weaver Co., Studebaker distributer, takes over all the territory of the San Francisco Studebaker branch. This includes northern California as far south as Porterville and the western half of the State of Nevada. The C. N. Weaver Co. has been Studebaker distributer since 1913. C. N. Weaver, president of the company, was formerly an employee of the Studebaker Corp., having been connected with this firm for hearly 25 years. For several years before Studebaker began the manufacture of automobiles he was the manager of the vehicle branch at San Francisco and continued as automobile manager until he took over the dealership in 1913.

At the same time the F. L. Shaw Co., Studebaker distributer at Dallas, has taken over the Dallas branch of the Studebaker Corp. with the exception of the New Mexico territory, which will be transferred to the Kansas City branch.

Doan Buys Studebaker Branch

TOLEDO, April 1—The Doan Motor Car Co. has taken over the Studebaker retail branch at Toledo, Ohio. Charles Doan, the proprietor, previously was sales manager of the Blevins Auto Sales Co. of Toledo, former Studebaker distributers, and also was manager of the Studebaker Sales Corp., which handled the territory just before the Studebaker Corp. took it over as a branch less than a year ago. L. A. Kellar has been appointed manager of the Studebaker branch in Chicago.

Changes in Selden Organization

ROCHESTER, N. Y., March 30—At a meeting of the directors of the Selden Truck Sales Co. yesterday, George C. Gordon was reelected president. The following elections were also made: William C. Barry, first vice-president; Robert H. Salmons, formerly secretary, second vice-president; Hal. T. Boulden, formerly sales director, vice-president in charge of sales and advertising; Wilbur F. Reynolds, formerly export manager, third vice-president in charge of foreign sales, and Edwin S. Osborn, formerly assistant treasurer, secretary and treasurer. Charles E. Williams was appointed assistant sales manager. C. Henry Mason will handle advertising under Mr. Boulden. At the meeting the capital stock of the company was increased to $750,000.

To Mend Our Soldiers' Rubber Boots

WARREN, O., April 1—The Arthur Vulcanizing Machine Co. has received a government order from the War Department for vulcanizing machines to be used in the repair of rubber footwear. A separate shop in the salvage plant of the American Expeditionary forces in France has been established and a number of vulcanizers are being installed. This work is being carried on under the supervision of Paul B. Masters, secretary and treasurer of the Arthur company. The vulcanizing method used is the same as that used for repairing tires and tubes and the materials used are the same. Half soles, heels and patches are put on.

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"Business and War" at Salesmanship Congress

Herbert N. Casson, of London, England, to Be Chief Speaker—Expect Big Gathering

DETROIT, March 30—Plans for the Third Annual World's Salesmanship Congress to be held in Detroit, April 24 to 27, are maturing rapidly. The keynote of the Congress will be, "Business and War Time." The principal speaker will be Herbert N. Casson, of London, who went to England from this country 5 years ago. Casson has been Sales Council to the Standard Oil Co., American Telephone Co., and International Harvester Co., was editor of the New York World and lately founded the Industrial Efficiency Movement in Great Britain.

This year the Congress is being held several weeks previous to the customary time. This is as a result of requests made by men of large business interests, who believe that such a conference with representatives of big business and salesmen discussing the difficulties facing the country's industries will have beneficial results at this time.

Some of the topics to be discussed at the coming Congress include: "To Win the War Can the Nation Do Without The Individual Business Man?" "Are the World Nations Going Bankrupt?"

E. Leroy Pelletier will address the Congress on the subject, "Is So-Called American Extravagance a Commercial Asset or a Liability?" Other subjects along this line are: "What Shall We Do With Business to Win the War?" "Is Enough Consideration Being Given to the Difficulty of Starting Up a Business and Having It Shut Down?" "Are We Sentencing Ourselves to a Seat on the Economic Doorstep of the Universe?"

Resolutions respecting the conduct of business during the war will be drawn up and sent to the business interests of the country by the Congress. In all about 100 addresses will be delivered. One which will be of particular interest will be by statistician Roger W. Babson, now in Washington as a special agent from the Department of Labor.

Four prominent business men are coming from Japan. They are: T. Alasaka and Uhei Satou of Tokio, Saijiro Ishizaki of Osaka, Japan, and Shinjiro Nomi of Bendai, Japan.

Motor Car Securities Quotations

	March 30, 1918 Bid	Asked
*Ajax Rubber Co.	52	55
*J. I. Case T. M. Co., pfd.	84	86
Chalmers Motor Co., com.	6	8
Chalmers Motor Co., pfd.	30	40
*Chandled Motor Co.	80	82
*Chandler Motor Co.	80	82
*Fisher Body Corp., com.	26	34
*Fisher Body Corp., pfd.	75	87
Fisk Rubber Co., com.	50	53
Fisk Rubber Co., 1st pfd.	98	103
Fisk Rubber Co., 2nd pfd.	70	75
Firestone Tire & Rubber Co., com.	92	94
Firestone Tire & Rubber Co., pfd.	96	98
*General Motors Co., com.	117½	118½
*General Motors Co., pfd.	81	83
*B. F. Goodrich Co., com.	42	44
*B. F. Goodrich Co., pfd.	93	99
Goodyear Tire & Rubber Co., com.	135	138
Goodyear Tire & Rubber Co., pfd.	96	98
Grant Motor Car Corp.	3	4
Hupp Motor Car Corp., com.	3	3½
Hupp Motor Car Corp., pfd.	85	90
International Motor Co., com.	22	26
International Motor Co., 1st pfd.	52	56
International Motor Co., 2nd pfd.	23	27
*Kelly-Springfield Tire Co., com.	42	44
*Kelly-Springfield Tire Co., 1st pf.	75	85

	March 30, 1918 Bid	Asked
*Lee Rubber & Tire Corp.	12	13
*Maxwell Motor Co., Inc., com.	26½	27½
*Maxwell Motor Co., Inc., 1st pfd.	53	55
*Maxwell Motor Co., Inc., 2nd pfd.	20	21½
Miller Rubber Co., com.	110	115
Miller Rubber Co., pfd.	95	97
Packard Motor Car Co., com.	92	97
Packard Motor Car Co., pfd.	89	92
Paige-Detroit Motor Car Co.	17	18
Peerless Truck & Motor Corp.	14	16
Portage Rubber Co., com.	107	109
†Reo Motor Car Co.	16	17
*Saxon Motor Car Corp.	7	9
Standard Motor Construction Co.	12½	13½
*Stewart-Warner Speed. Corp.	54	55
*Studebaker Corp., com.	38½	39½
*Studebaker Corp., pfd.	89	91
Swinehart Tire & Rubber Co.	25	40
United Motors Corp.	26½	26¾
*U. S. Rubber Co., com.	54	55
*U. S. Rubber Co., pfd.	102	104
*White Motor Co.	41	42½
*Willys-Overland Co., com.	17	18
*Willys-Overland Co., pfd.	81	82½
Standard Parts Co.	69	70

*At close March 30, 1918. Listed New York Stock Exchange. †Par value $10.

TRUCK LINE FOR PAIGE

Will Have All Sizes from 1 to 5 Tons—Separate Truck Department

DETROIT, March 28—The Paige-Detroit Motor Car Co., after studying the motor hauling situation and making an exhaustive investigation of the problems involved, will market a complete line of Paige trucks, ranging from 1 to 5-ton capacities. A separate truck department is being organized and a complete truck factory equipped, comprising several buildings in addition to those already included in the Paige group. The new truck plant will be entirely distinct from the passenger factory, but the product will bear the Paige name and will be exclusively and completely a Paige product.

Southern Dealers Plan Drive-aways

BIRMINGHAM, ALA., April 1—Owing to demand which is crowding the books of distributers, several leading Birmingham dealers are leaving within the next two or three days for factory points to arrange for some method of meeting local conditions. Robert C. Lees, president of the Overland Motor Car Co. of Birmingham, last week received ten carloads of new cars, which were for immediate delivery, and he stated that double this number of machines could have been disposed of as readily. Dealers declare that March has proven the best month the automobile industry has witnessed in this territory, and they all agree that the zenith has not yet been reached.

Studebaker to Make 150 Cars a Day

DETROIT, March 30—The Studebaker Corp. has started quantity production of its new models. More than 1000 have already been manufactured and shipped, and are being turned out at the rate of 40 cars a day. This will be increased to 100 a day in 3 weeks, and 150 a day in 6 weeks.

The Street Without a Name

(*Continued from page* 16)

where you are and all about who you are.

"This advertising also serves to give you a certain amount of stability and reliability in the eyes of the public. People consider that a man who advertises must be quite a reliable merchant, or else he wouldn't be so conspicuous every week in the paper. The paper is well thought of and the good name of the paper is reflected upon this advertising. There are some papers that refuse advertising that is considered undesirable. It hurts the good name of the paper.

"Once upon a time there was an old fellow who said that no matter what you had, even if it was a mouse trap, the world would beat a path to your door, providing you had a very good article, but with present day advertising methods that stuff is somewhat passé, because no matter how good a thing you have you can't get it across unless you advertise.

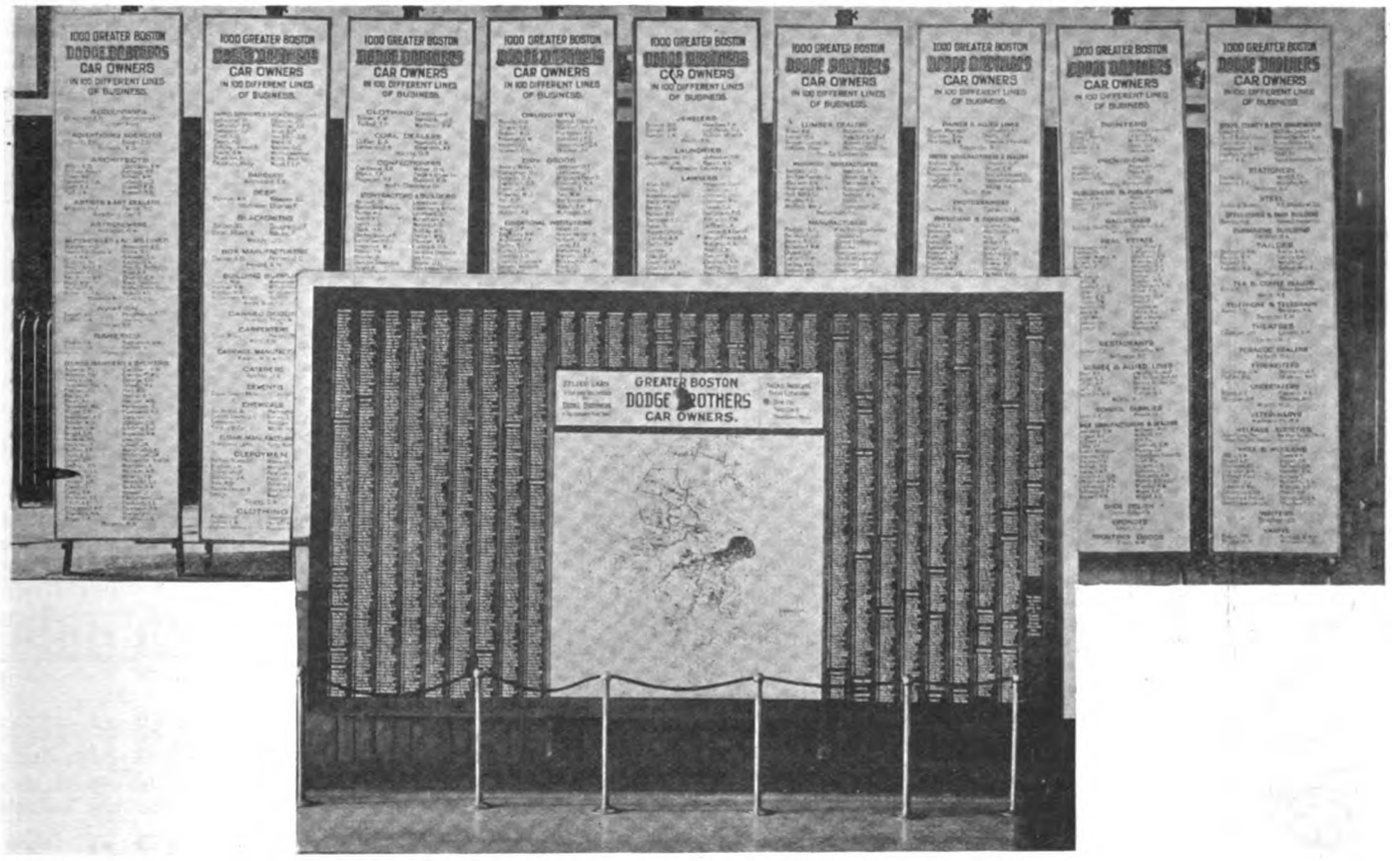
"I'm talking now particularly about newspaper advertising, in a local territory. You may have the best car in the world and be the best dealer in your section of the country, but if you don't continually keep impressing that fact upon the public they are going to go down some other street when they want to buy.

"Furthermore, advertising makes it easy for you to sell your goods. The advertised article is the one that a man asks for and thinks of when he wants to fill a need. If I were you I would set aside a certain sum of money for this advertising, lay out a campaign to run a good portion of the summer and then I would start the campaign and let it ride. It's bound to get you results at some time and you don't have to sell very many cars to get all your money back and then some.

"If you live on the street called 'Advertising' there are always a lot of people going by your door, but if you're on an unknown street you are out of the limelight and out of the thoughts of the people who buy."

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Henshaw Makes Your Neighbor His Salesman



BOSTON, March 28—C. S. Henshaw, Dodge Brothers dealer, had a celebration a few days ago, and in preparation for it he had arranged a map around which were painted the names of more than 2000 owners. It cost several hundred dollars, but it was worth it, he said, to hear people say as they looked over the map many such things as this:

"Why, I didn't know John Smith of our town owned a car."

"Oh! there's Uncle William's name."

"See, they have your name on the wall, pa."

In the center of the board was a map with a lot of dots showing the number of owners in each city and town. These were very thick in some of the places. The cities and towns were groups about the map alphabetically, and the names of owners were arranged in that manner, each name being painted on by hand. Since the motor show the board will have to be enlarged a great deal. It now covers a large part of the wall on one side of the salesroom, measuring some 8 ft. by 1 ft. There are ten other signs on an easel giving the names of 1000 owners of Dodge Brothers cars in Greater Boston that are in more than 100 lines of business. The two make a fine display and prove particularly good silent salesmen.

Coming—THE SHOW CALENDAR—*Events*

Is YOUR Show Listed? Send Us the Dates

Battle Creek, Mich.	Second Automobile Show, Independent Garage.	Apr. 3-6
Atlantic City, N. J.	Second Annual, Garden Pier. W. W. Garabrant, Mgr.	Mar. 30-Apr. 6
Chicago, Ill.	Second Annual Used Car, Chicago Auto. Trade Assn., Coliseum.	Mar. 30-Apr. 6
Hartford, Conn.	Hartford Automobile Dealers' Assn., State Armory. B. F. Smith, Mgr.	Mar. 30-Apr. 6
Toronto, Can.	Convention Automobile Dealers of Ontario.	Apr. 1-3
York, Pa.	York Automobile Deals' Assn., Queen St. Tabernacle.	Apr. 1-6
Green Bay, Wis.	Brown County Automobile Trade Assn.	Apr. 6-8
Ogdensburg, N. Y.	Second Annual, State Armory	Apr. 3-6
Red Bank, N. J.	Monmouth County Auto. Dealers' Assn., Armory. E. C. Von Kattengell, Mgr.	Apr. 6-13
Reading, Pa.	Reading Automobile Trade Assn.	Apr. 8-13
Deadwood, S. D.	City Auditorium	Apr. 15-20
Calumet, Mich.	Upper Peninsular Show, Copper County Automobile Dealers' & Garage Owners' Assn., Coliseum.	Apr. 17-20
Davis, Cal.	Tractor Demonstrations, University of California.	Apr. 17-19

Conventions

Detroit, Mich.	World's Salesmanship Congress. Third Annual Session.	Apr. 24-27
Lima, O.	Ohio State Automobile Assn.	May 3-7
Hot Springs, Va.	Convention National Association of Automobile Accessory Jobbers.	June 5-13

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Passenger Cars

MOTOR WORLD GUIDE

Passenger Cars

This table appears in the first issue every month. It is corrected every month and brought up to date.

MAKE AND MODEL	Price	No. of Cylinders	Bore and Stroke, Inches	S.A.E. H.P.	Piston Displacement Cubic Inches	High Gear Ratio	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION System	LUBRICATION Type of Pump	ELECTRIC SYSTEM Make	ELECTRIC SYSTEM Voltage	IGNITION Make	IGNITION Plug	CARBURETION Make of Carbureter	CARBURETION Fuel Feed	Clutch Type	TRANSMISSION GEARSET Location	TRANSMISSION GEARSET Forward Speeds	TRANSMISSION GEARSET Make	TRANSMISSION Final Drive	TRANSMISSION Car Drives Through	TRANSMISSION Rear Axle Type	TRANSMISSION Make of Rear Axle	TRANSMISSION Torque Taken By	RUNNING GEAR Wheelbase	RUNNING GEAR Tires	RUNNING GEAR Rims	RUNNING GEAR Wheels	RUNNING GEAR Rear Springs	Make of Speedometer	BEARINGS Number Crankshaft Bearings	BEARINGS Gearset	BEARINGS Rear Axle	BEARINGS Front Wheel
Abbott.....6-60	$1595	6	3½x5½	20.4	303.1	4.30–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Remy...	7/8	Remy...	6	Stmbg...	V.	D..	Unit M..	3	Muncie...	Sp.B..	Springs..	¾ F..	Salsbry..	Springs..	122	34x4	SS...	Wd.	S-E...	Stewart..	3	B...	BR.	R...
Allen.....41	1095	4	3½x5	22.5	220.9	4.25–1	Own....	L.	H...	T.	Cir-Sp...	P.	A-Lite-2.	6	Conn...	7/8	Stmbg...	V.	P..	Unit M..	3	Own.....	Sp.B..	Springs..	F...	Adams..	Springs..	112	32x3½	SS...	Wd.	S-E...	Stewart..	2	BR.	B...	R...
American.....B	1375	6	3½x5	23.4	230.1	4.42–1	Rutnbr..	L.	H...	P.	Sp-Pr...	P.	G&D-2..	6	G&D...	7/8	Zenith...	V.	P..	Unit M..	3	Mech....	Sp.B..	Springs..	¾ F..	Salsbry..	Springs..	122	32x4	SS...	Wd.	S-E...	VanS...	3	BP..	BR.	B...
Anderson.....20	1435	6	3½x4½	25.3	224.0	4.58–1	Cont....	L.	H...	P.	Sp-Pr...	P.	West-2..	6	Conn...	7/8	Zenith...	V.	P..	Unit M..	3	Drstn....	Sp.B..	Springs..	½-F.	Clumba.	Springs..	120	33x4	SS...	Wd.	S-E...	Stewart..	3	B...	R...	B...
Anderson-De Luxe.....	....	6	3½x5½	29.4	303.1	....	Cont....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Apperson.....8-18	2550	8	3½x5	33.8	331.8	4.25–1	Own....	L.	H...	T.	Sp-Pr...	G	Bijur-2..	6	Remy...	7/8	Johnson.	V.	P..	Amid...	3	Own.....	Sp.B..	Springs.	SF..	Own....	Springs..	130	34x4	SS...	Wd.	¾ Ell..	VanS...	3	B...	R...	R...
Auburn.....6-39	1345	6	3½x4½	25.3	224.0	4.42–1	T-Hart..	L.	H...	P.	Sp-Pr...	P.	Remy-2.	6	Remy...	7/8	Rayfld..	V.	P..	Unit M..	3	G-Lees...	Sp.B..	Springs.	¾ F..	.....	Tor.A...	120	34x4	SS...	Wd.	S-E...	Stewart..	3	B...	R...	B...
Auburn.....6-44	1685	6	3½x5½	29.4	303.1	4.08–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Remy-2.	6	Remy...	7/8	Rayfld..	V.	P..	Unit M..	3	G-Lees...	Sp.B..	Springs.	F...	.....	Tor.A...	131	35x4½	SS...	Wd.	Cant..	Stewart..	3	B...	R...	B...
Austin.....	3750	12	2½x5	39.7	389.5	3.75–1	Widly...	I.	H...	P.	Pr.....	G.	Delco-2..	6	Delco...	7/8	Stmbg...	V.	D..	Unit M..	3	Muncie...	Sp.B..	Springs.	F...	Own....	Springs..	142	34x4½	QD..	Wd.	DCant	Stewart..	3	B...	BR.	R...
Bell.....18	995 1145	4	3½x4½ 3½x5	22.5	187.7 220.9	.....	G.B.&S Cont...	L.	H...	T.	Cir-Sp...	P.	Dynto-2.	6	A.Kent..	7/8	Zenith...	V.	D..	Unit M..	3	Covert...	Bevl..	Springs.	¾ F..	Adams..	Springs..	114	32x3½	.....	Wd.	¾ Ell..	Stewart..	2	R...	R...	B...
Biddle.....H	2650	4	3½x5½	22.5	226.4	4.40–1	Buda...	L.	H...	T.	Cir-Sp...	G.	G&D-2..	6	Eismn...	7/8	Zenith...	V.	P..	Unit M..	4	Own.....	Sp.B..	Springs.	F...	Own....	Springs..	121	32x4	QD..	Wr..	S-E...	Warner..	3	BB.	R...	R...
Bour-Davis.....18A	1680	4	3½x5	22.5	220.0	4.00–1	Cont....	I.	H...	P.	Cir-Sp...	G.	West....	6	West...	7/8	Miller..	V.	P..	Unit M..	3	Detroit...	Sp.B..	Springs.	¾ F..	Salsbry..	Springs..	118	32x4	QD..	Wd.	S-E...	VanS...	3	B...	R...	B...
Bour-Davis.....18B	1785	6	3½x5½	29.4	303.0	4.07–1	Cont....	L.	H...	P.	Cir-Sp...	P.	West....	6	West...	7/8	Stmbg...	V.	P..	Unit M..	3	Detroit...	Sp.B..	Springs.	¾ F..	Salsbry..	Springs..	118	33x4½	QD..	Wd.	S-E...	VanS...	3	B...	R...	B...
Brewster.....*Chassis	5500	4	4 x5½	25.6	276.0	4.25–1	Own....	K	C...	P.	Pr.....	G.	U.S.L..	12	Bosch...	7/8	Zenith...	V.	C..	Unit T..	3	Own.....	Sp.B..	Tor.T..	F...	Own....	Tor.T...	125	34x4½	SS...	Wd.	Cant..	Stewart..	3	B...	R...	R...
Briscoe.....B-4-24	825	4	3⅞x5½	16.3	163.0	4.23–1	Own....	L.	H...	T.	Cir-Sp...	P.	A-Lite...	6	Conn...	7/8	Buick..	G.	C..	Unit X..	3	Own.....	Bevl..	Tor.A..	S-F.	Own....	Tor.A...	104	30x3½	C...	Wd.	Ell....	Stewart..	2	Brp.	BR.	B...
Buick.....E-4-34, E-4-35	795	4	3½x4½	18.2	170.0	4.08–1	Own....	I.	H...	P.	Cir-Sp...	G	Delco-1..	6	Delco...	7/8	Marvel..	V.	C..	Amid...	3	Own.....	Bevl..	Springs.	¾ F..	West-M.	Springs..	106	31x4	C...	Wd.	S-E...	Stewart..	3	B...	R...	B...
Buick.....E-4-37	1185	....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Buick.....E-6-44-45	1265	6	3½x4½	27.3	242.0	4.08–1	Own....	I.	H...	P.	Cir-Sp...	G	Delco...	6	Delco...	7/8	Marvel..	V.	D..	Amid...	3	Own.....	Sp.B..	Tor.....	F...	West-M.	Tor.T...	118	34x4	SS...	Wd.	Cant..	Stewart..	4	B...	R...	R...
Buick.....E-6-46	1695	....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Buick.....E-6-47	1845	....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Buick.....E-6-49	1495	6	3½x4½	27.3	242.0	4.61–1	Own....	I.	H...	P.	Cir-Sp...	G	Delco...	6	Delco...	7/8	Marvel..	V.	D..	Amid...	3	Own.....	Sp.B..	Tor.....	F...	West-M.	Tor.T...	124	34x4½	SS...	Wd.	Cant..	Stewart..	4	B...	R...	R...
Buick.....E-6-50	2175	....	.....	....	.....	.....	.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cadillac.....57	2805	8	3½x5½	31.2	314.0	4.43–1	Own....	L.	C...	P.	Pr.....	G	Delco-1..	6	Delco...	7/8	Own....	P.	D..	Unit M..	3	Own.....	Sp.B..	Springs.	F...	Timken..	Tor.T...	125 132	34x4½ 35x5	SS...	Wd.	Plat...	.....	3	Brp.	R...	R...
Case.....U	1875	6	3½x5½	29.4	303.0	4.45–1	Cont....	L.	H...	P.	Sp-Pr...	P.	West....	6	West...	7/8	Rayfld..	V.	P..	Unit M..	3	G-Lees...	Sp.B..	Springs.	½-F.	Clumba.	Springs..	125	35x4½	SS...	Wd.	S-E...	Stewart..	3	B...	R...	R...
Chalmers.....6-30	1365	6	3½x4½	25.3	224.0	4.75–1 5.09–1	Own....	L.	C...	T.	Sp-Pr...	G	West-2..	6	Remy...	7/8	Stmbg...	V.	D..	Unit M..	3	Own.....	Sp.B..	Sprin.s.	S-F.	Timken..	Springs.	117 122	32x4 34x4	SS...	Wd.	S-E...	Stewart..	3	R...	R...	R...
Chandler.....	1595	6	3½x5	29.4	289.0	4.40–1	Own....	L.	C...	P.	Sp-Pr...	P.	West....	6	Bosch...	7/8	Rayfld..	V.	P..	Unit M..	3	Own.....	Sp.B..	Springs.	F...	Own....	Tor.A...	123	34x4	SS...	Wd.	S-E...	Stewart..	3	B...	B...	R...
Chevrolet.....490	685	4	3½x4	21.7	171.0	3.65–1	Own....	I.	H...	P.	Sp-Pr...	G	A-Lite-2.	6	Remy...	7/8	Zenith...	G.	C..	Amid...	3	Own.....	Sp.B..	Springs.	¾ F..	Own....	Springs.	102	30x3½	C...	Wd.	Cant..	Stewart..	3	BP..	R...	C&C
Chevrolet.....FA	935	4	3½x5½	21.7	224.0	4.25–1	Own....	I.	H...	P.	Sp-Pr...	G	A-Lite-2.	6	Remy...	7/8	Zenith...	V.	C..	Amid...	3	Own.....	Sp.B..	Springs.	¾ F..	Own....	Springs.	108	33x4	SS...	Wd.	Cant..	Stewart..	3	BP..	R...	C&C
Chevrolet.....D4 & D5	1385	8	3½x4	36.4	286.9	4.25–1	Own....	I.	H...	P.	Sp-Pr...	G	A-Lite-2.	6	Remy...	7/8	Zenith...	V.	C..	Amid...	3	Own.....	Bevel	Springs.	¾ F..	Own....	Tor.T...	120	34x4	SS...	Wd.	Cant..	Stewart..	3	BP..	R...	C&C
Cole.....870	2395	8	3½x4½	39.2	346.4	4.45–1	North...	L.	H...	P.	Pr.....	G	Delco-2..	6	Delco...	7/8	Stmbg...	V.	C..	Unit M..	3	North...	Sp.B..	Springs.	F...	Clumba.	Springs.	127	33x5	SS...	Wd.	S-E...	Warner..	3	B...	R...	R...
Columbia.....C & D	1350	6	3½x4½	25.3	224	4.75–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Remy...	6	A.Kent..	7/8	Stmbg...	V.	P..	Unit M..	3	Warner...	Sp.B..	Springs.	¾ F..	Timken..	Tor.T...	115	32x4	SS...	Opt.	Cant..	Stewart..	3	B...	R...	B...
Comet.....C-50	1285	6	3½x5	29.4	289.0	4.50–1	Lewis...	L.	H...	P.	Sp-Pr...	P.	Dynto..	6	Delco...	....	Miller..	V.	D..	Unit M..	3	Mech....	Sp.B..	Springs.	¾ F..	W-Weiss	Tor-T...	125	33x4	.....	Opt.	Cant..	Stewart..	3	B...	R...	B...
Commonwealth.....4-40	995	4	3½x5	19.6	192.0	4.00–1	Lycmg..	L.	H...	T.	Cir-Sp...	P.	Dynto-2.	6	A.Kent..	7/8	Carter...	V.	D..	Unit M..	3	Mech....	Sp.B..	Springs.	F...	Peru....	Springs..	115	32x3½	SS...	Opt.	¾ Ell..	VanS...	2	B...	BR.	B...
Crawford.....6-40	2250	6	3½x5½	29.4	303.0	4.08–1	Cont....	L.	H...	P.	Cir-Sp...	P.	West-2..	....	Bosch...	7/8	Stmbg...	V.	P..	Unit M..	3	Own.....	Sp.B..	.....	¾ F..	Timken..	Springs.	122½	32x4	.....	Wd.	S-E...	Stewart..	3	R...	R...	R...
Crow-Elkhart.....CE-36	995	4	3½x5	19.6	192.0	4.25–1	Own....	I.	H...	T.	Cir-Sp...	G	Dynto-2.	6	Conn...	7/8	Zenith...	V.	P..	Unit M..	3	Covert...	Bevl..	Springs.	F...	Peru....	Springs.	115	32x3½	SS...	Opt.	S-E...	Stewart..	3	B...	R...	C&C
Cunningham.....V	4250 4750	8	3½x5	45.0	442.0	3.08–1 4.08–1	Own....	L.	H...	P.	Pr.....	G	West-2..	6	Delco...	7/8	Stmbg...	V.	D..	Unit M..	3	B-Lipe...	Sp.B..	Springs.	F...	Timken..	Tor.T...	132 142	35x5 37x5	Opt.	Opt.	¾ Ell..	Warner..	3	Brp.	R...	R...
Daniels.....B	3250	8	3½x5	33.8	332.0	4.45–1	Her-Sp..	L.	H...	P.	Pr.....	G	West-2..	6	West...	7/8	Zenith...	V.	D..	Unit M..	3	B-Lipe...	Sp.B..	Springs.	¾ F..	Timken..	Tor.T...	127	34x4½	QDR	Wd.	S-E...	Warner..	3	BR.	R...	R...
Davis.....H, I & K*	1485	6	3½x4½	25.3	224.0	4.58–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Delco-2..	6	Delco...	7/8	Stmbg...	V.	C..	Unit M..	3	Warner...	Sp.B..	Springs.	¾ F..	Clumba.	Springs.	119	34x4	SS...	Wd.	S-E...	Stewart..	3	BP..	R...	B...
Davis.....J & I	1785	6	3½x5½	29.4	303.0	4.42–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Delco-2..	6	Delco...	7/8	Stmbg...	V.	C..	Unit M..	3	Warner...	Sp.B..	Springs.	F...	Clumba.	Springs.	125	34x4½	QD..	Wd.	S-E...	Stewart..	3	BP..	R...	R...
Dispatch.....	1250	4	3½x5	22.5	220.9	4.12–1	Wis.....	L.	H...	T.	Pr.....	G.	USL.-1..	12	Delco...	7/8	Rayfld..	V.	CU	Amid...	4	Own.....	Int.C..	Rad.Rd.	D...	Own....	Springs.	120	36x3½	QD.	Wd.	Ell....	Corbin..	3	B...	B...	B...
Dixie Flyer.....LS-35	995	4	3½x5	16.9	165.9	4.75–1	Lycmg..	L.	H...	T.	Cir-Sp...	P.	Dynto-2.	6	Conn...	7/8	Carter...	V.	D..	Unit M..	3	G-Lees...	Sp.B..	Tor.T..	F...	Peru....	Tor.T...	112	32x3½	SS...	Wd.	¾ Ell..	VanS...	2	Brp	BR.	B...
Doble-Detroit.....D	3750	2	5 x4	20.0	314.0	1.25–1	Own....	..	..	P.	Sp-Pr...	P.	Wagnr-2	12	Doble...	.....	.....	P.	..	.....	..	S.....	.....	Springs.	S-F.	Americ'n	Tor.A...	135	35x5	.....	Wd.	S-E...	Waltham	2	B...	B...	B...
Dodge Brothers.....	885	4	3½x4½	24.0	212.3	4.17–1 3.62–1	Own....	L.	H...	P.	Cir-Sp...	G.	N-East-1	12	Own....	⅞	Stewart..	V.	D..	Unit M..	3	Own.....	Sp.B..	Springs.	F...	Own....	Tor.T...	114	32x3½	SS...	Opt.	¾ Ell..	J-M....	3	RP..	R...	R...
Dorris.....6-80	.....	6	4 x5	38.4	377.0	3.50–1	Own....	I.	H...	P.	Pr.....	G.	West-2..	6	Bosch...	7/8	Stmbg...	V.	D..	Unit M..	3	Own.....	Sp.B..	Springs.	¾ F.	Timken.	Springs..	132	33x5	SS...	Wr..	S-E...	Warner..	7	R...	R...	R...
Dort.....11	865	4	3½x5	19.6	192.0	4.00–1	Own....	L.	H...	T.	Cir-Sp...	P.	West-2..	6	Conn...	7/8	Carter...	G.	C..	Unit M..	3	Mech....	Bevl..	Springs.	¾ F..	W-Weiss	Tor.T...	105	30x3½	QD..	Opt.	Cant..	Stewart..	2	BP..	RP.	B...
Elcar.....DF	1095	4	3½x5	19.6	192.4	.....	Lycmg..	L.	H...	T.	Cir-Sp...	P.	Dynto-2.	6	A.Kent..	7/8	L-O.....	V.	D..	Unit M..	3	Mech....	Sp.B..	Springs.	F...	Salsbry..	Springs..	116	32x3½	SS...	Wd.	S-E...	Stewart..	2	B...	R...	R...
Elcar.....	1295	6	3½x4½	25.3	224.0	4.50–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Dynto...	6	A.Kent..	7/8	Stmbg...	V.	P..	Unit-M..	3	Muncie...	Sp.B..	Springs.	F...	Salsbry.	Springs..	....	33x4	SS...	Wd.	S-E...	Stewart..	3	B...	R...	R...
Elgin.....F	1095	6	3x4½	21.6	196.2	4.45–1	Falls....	I.	H...	T.	Cir-Sp...	P.	Wagnr-2	6	Wagnr..	7/8	Stmbg...	V.	P..	Unit M..	3	Mechs....	Sp.B..	Springs.	¾ F..	Adams..	Tor.A...	117	33x4	.....	Wd.	Cant..	VanS...	3	BP..	B...	R...
Empire.....50–51	1125	4	3½x5	24.0	235.8	4.33–1	T-Hart..	T.	H...	P.	Cir-Sp...	..	A-Lite-2.	6	Conn...	7/8	Stmbg...	V.	P..	Unit M..	3	Mechs....	Bevl..	Springs.	¾ F..	Peru....	Tor.T...	115	33x4	SS...	Opt.	S-E...	Stewart..	3	BP..	BR.	B...
Empire.....70A	1345	6	3½x4½	25.3	224.0	4.58–1	Cont....	L.	H...	P.	Sp-Pr...	P.	A-Lite-2.	6	Conn...	7/8	Stmbg...	V.	P..	Unit M..	3	Mechs....	Sp.B..	Springs.	F...	Hess....	Springs..	120	34x4	SS...	Opt.	S-E...	Stewart..	3	BP..	BR.	B...

*Model JK, $1850

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PASSENGER CARS—Continued

MAKE AND MODEL	Price	No. of Cylinders	Bore and Stroke, Inches	S.A.E. H.P.	Piston Displacement Cubic Inches	High Gear Ratio	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION System	LUBRICATION Type of Pump	ELECTRIC SYSTEM Make	ELECTRIC SYSTEM Voltage	IGNITION Make	IGNITION Plug	CARBURETION Make of Carbureter	CARBURETION Fuel Feed	Clutch Type	TRANSMISSION GEARSET Location	TRANSMISSION GEARSET Forward Speeds	TRANSMISSION GEARSET Make	TRANSMISSION Final Drive	TRANSMISSION Car Drives Through	TRANSMISSION Rear Axle Type	TRANSMISSION Make of Rear Axle	TRANSMISSION Torque Taken By	RUNNING GEAR Wheelbase	RUNNING GEAR Tire	RUNNING GEAR Rims	RUNNING GEAR Wheels	RUNNING GEAR Rear Springs	Make of Speedometer	BEARINGS Number Crankshaft Bearings	BEARINGS Gearset	BEARINGS Rear Axle	BEARINGS Front Wheel
Oakland.....34-B	1050	6	2½x4½	19.0	177.0	4.50–1	North...	I.	H...	P.	Sp-Pr...	G.	Remy-2..	6	Remy...	⅞	Marvel..	V.	C..	Unit M..	3	Warner....	Bevel..	Springs..	F...	West.M..	Springs..	112	32x4	SS...	Wd.	S-E...	Stewart..	3	BP..	BR.	B...
Oldsmobile.....37	1195	6	2½x4½	19.0	177.0	4.58–1	North...	I.	H...	P.	Pr.....	G.	Remy-2..	6	Remy...	⅞	Johnsn..	V.	C..	Unit M..	3	North.....	Sp.B..	Springs..	F...	West.M..	Springs..	112	32x4	SS...	Wd.	S-E...	Stewart..	3	Brp.	BR.	R...
Oldsmobile.....45-A	1495	8	2½x4½	26.4	246.7	4.92–1	Own....	L.	H...	P.	Pr.....	G.	Delco-2..	6	Delco...	⅞	Ball....	V.	C..	Unit M..	3	Own.....	Sp.B..	Springs..	F...	West.M..	Springs..	120	34x4	SS...	Wd.	½ Ell..	Stewart..	2	Brp.	BR.	R...
Olympian.....	1085	4	3½x4½	16.9	149.3	4.75–1	Own....	I.	H...	T.	Pr.....	G.	A-Lite-2.	6	Conn....	....	Stmbg...	V.	D..	Unit X..	3	Own.....	Sp.B..	Springs..	¾ F..	Own....	Rad.Rd	112	32x3½	.....	Opt.	Trans.	Stewart..	2	BP..	BR.	B...
Overland.....90	850	4	3½x5	18.2	178.9	4.00–1	Own....	L.	H...	T.	Cir-Sp...	P.	A-Lite-2.	6	Conn....	⅞	Tilltsn..	V.	C..	Unit X..	3	Own.....	Bevel..	Tor.T....	¾ F..	Own....	Tor.T...	106	31x4	C....	Wd.	Cant..	Stewart..	2	Brp.	BR.	R...
Overland.....85-B-4	965	4	4½x4½	27.2	240.5	4.00–1	Own....	L.	H...	T.	Cir-Sp...	G.	A-Lite-2.	6	Conn....	⅞	Tilltsn..	V.	C..	Unit X..	3	Own.....	Bevel..	Tor.T....	¾ F..	Own....	Tor.T...	112	32x4	SS...	Wd.	Cant..	Stewart..	5	BR.	BR.	R...
Overland.....85	1195	6	3½x4½	25.3	224.0	4.60–1	Cont....	L.	H...	P.	Sp-Pr...	P.	A-Lite...	6	Conn....	⅞	Tilltsn..	V.	C..	Unit X..	3	Own.....	Sp.B..	Tor.T....	¾ F..	Own....	Tor.T...	116	32x4	C....	Wd.	Cant..	Stewart..	3	BR.	BR.	R...
Owen Magnetic.....W-42	5300	6	4 x5½	38.4	414.7	4.00–1	Own....	I.	Sp-g	P.	Pr.....	G.	Own....	24	Bosch...	⅞	Zenith...	V.	Om	Unit M..	....	Magnetic..	Sp.B..	Springs..	F...	Amer...	Springs..	142	35x5	SS...	Wr..	S-E...	Warner..	3	....	R...	R...
Owen Magnetic.....M-25	3300	6	3½x5½	29.4	303.1	4.08–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Own....	14	Bosch...	⅞	Zenith...	V.	Om	Unit M..	....	Magnetic..	Sp.B..	Springs..	¾ F..	Timken..	Springs..	125	34x4½	SS...	Wd.	S-E...	Warner..	3	....	R...	R...
Owen Magnetic.....O-36	3950	6	3½x5½	33.6	339.7	3.50–1	Buda...	L.	H...	P.	Sp-Pr...	G.	Own....	28	Bosch...	⅞	Zenith...	V.	Om	Unit M..	....	Magnetic..	Sp.B..	Springs..	F...	Amer...	Tor.T...	136	35x5	SS...	Wr..	S-E...	Warner..	4	....	R...	R...
Packard.....{3-25	3950	12	3 x5	43.2	424.1	4.36–1	Own....	L.	C...	P.	Pr.....	G.	Bijur-2..	6	Delco...	⅞	Own....	P.	D..	Unit M..	3	Own.....	Sp.B..	Springs..	S-F.	Own....	Tor.A...	128	35x5	QD..	Wd.	S-E...	Walthm.	3	BR.	B...	R...
3-35}	4300																											136										
Paige.....6-39	1395	6	3½x5	23.4	230.1	4.41–1	Rutnbr..	L.	H...	P.	Sp-Pr...	P.	G&D-2..	6	Remy...	⅞	Stmbg...	G.	P..	Unit M..	3	Own.....	Sp.B..	Tor.T....	¾ F..	Salsbry..	Tor.T...	117	32x4	SS...	Wd	Cant..	Stewart..	3	Brp.	BR.	R...
Paige.....6-55	1870	6	3½x5½	29.4	303.1	4.35–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Remy-2..	6	Remy...	⅞	Rayfld..	V.	P..	Unit M..	3	Own.....	Sp.B..	Springs..	¾ F..	Salsbry..	Tor.T...	127	35x4½	SS...	Wd.	Cant..	Stewart..	3	Brp.	BR.	B...
Pan-American.....G-5	1500	6	3½x5	23.4	230.0	4.45–1	Rutnbr..	L.	H...	P.	Sp-Pr...	P.	G&D....	6	G&D....	⅞	Rayfld..	V.	P..	Unit M..	3	Warner....	Sp.B..	Springs..	S-F.	Timken..	Springs..	120	33x4½	SS...	Wd	S-E...	Stewart..	3	B...	R...	R...
Paterson.....6-45	1295	6	3½x4½	25.4	224.0	4.50–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Delco...	6	Delco...	⅞ L	Stmbg...	V.	C..	Unit M..	3	Detroit....	Sp.B..	Springs..	F...	Hess....	Springs..	120	32x4	C....	Wd.	½ Ell..	Stewart..	3	P...	R...	B...
Peerless.....56	2340	8	3½x5	33.8	331.8	4.90–1	Own....	L.	H...	P.	Pr.....	G.	A-Lite-2.	6	A.Kent..	⅞	Ball....	V.	D..	Unit M..	3	B-Lipe....	Sp.B..	Springs.	S-F.	Timken..	Springs..	125	35x4½	SS...	Wd.	Plat..	Warner..	3	BR.	R...	R...
Pierce-Arrow.....C-4	4800	6	4 x5½	38.4	414.7	3.78–1	Own....	T.	H...	P.	Pr.....	G.	West-2..	6	Bosch...	⅞	Own....	P.	C..	Amid...	4	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.T...	134	34x4½	QD..	Wd.	½ Ell..	Warner..	7	B...	BR.	R...
Pierce-Arrow.....B-4	5500	6	4½x5½	48.6	524.8	3.53–1	Own....	T.	H...	P.	Pr.....	G.	West-2..	6	Bosch...	⅞	Own....	P.	C..	Amid...	4	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.T...	142	35x5	QD.	Wd.	½ Ell..	Warner..	7	B...	BR.	R...
Pierce-Arrow.....A-4	6500	6	5 x7	60.0	824.7	2.88–1	Own....	T.	H...	P.	Pr.....	G.	West-2..	6	Bosch...	⅞	Own....	P.	C..	Amid...	4	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.T...	147½	36x5½	QD.	Wd.	½ Ell..	Warner..	7	B...	BR	R...
Pilot.....6-45	1295	6	3½x5	23.4	230.1	4.25–1	T-Hart..	L.	H...	P.	Sp-Pr...	P.	Delco-2..	6	Delco...	⅞	Tiltsn..	V.	P..	Unit M..	3	Muncie....	Sp.B..	Springs.	¾ F..	Hess....	Tor.A...	120	32x4	SS...	Wd	Cant..	Stewart..	3	BR.	BR.	R...
Premier.....6-C	2285	6	3½x5½	27.3	295.3	4.45–1	Own....	I.	H...	P.	Sp-Pr...	G.	Delco-2..	6	Delco...	⅞	Johnson..	V.	P..	Unit M..	3	Detroit....	Sp.B..	Springs.	S-F.	Timken..	Springs..	125½	35x4½	SS...	Wd.	S-E...	Warner.	3	BP..	R...	R...
Princess.....36-F	875	4	3½x4½	22.5	187.7	4.25–1	G.B.&S..	L.	C...	T.	Cir-Sp...	P.	Disco-2..	6	Splitdrf..	⅞	Schblr...	V.	D..	Unit M..	3	G-Lees....	Sp.B..	Springs..	F...	Own....	Springs..	108	32x3½	.....	Wd.	½ Ell..	VanS...	3	BR.	BR.	B...
Regal.....J	795	4	3½x4½	19.6	182.8	4.25–1	Own....	L.	H...	T.	Cir-Sp...	P.	A-Lite...	6	A.Kent..	½	Carter...	V.	C..	Unit M..	3	G-Lees....	Bevel..	Tor.T....	F...	Peru....	Tor.T...	108	30x3½	QD..	Wd	Cant..	Stewart..	3	B...	BR.	B...
Reo.....T	1225	4	4½x4½	27.2	240.5	4.30–1	Own....	F.	H...	P.	Cir-Sp...	P.	Remy-2..	6	Remy...	½ L	Johnson..	V.	D..	Amid...	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Springs.	120	34x4	SS...	Wd.	S-E...	Stewart..	3	R...	R...	R...
Reo.....M	1550	6	3½x5½	30.4	306.6	4.30–1	Own....	F.	H...	P.	Cir-Sp...	P.	Remy-2..	6	Remy...	½ L	Rayfld..	V.	D..	Amid...	3	Own.....	Sp.B..	Springs.	F...	Own....	Tor.A...	126	34x4½	SS...	Wd	Cant..	Stewart..	3	R...	R...	R...
Roamer.....D-4-75	2950	4	4 x6	25.6	301.6	3.77–1	Dusnbrg	H	H...	P.	Sp-Pr...	G.	Bijur...	6	Bosch...	⅞	Stmbg...	V.	P..	Unit M..	3	G-Lees....	Sp.B..	Springs.	¾ F..	Hess....	Tor.T...	128	32x4½	SS...	Wr..	S-E...	Stewart..	3	BR.	B...	B...
Roamer.....C-6-54	2250	6	3½x5½	29.4	303.1	3.77–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Bijur....	6	Bosch...	⅞	Stmbg...	V.	P..	Unit M..	3	G-Lees....	Sp.B..	Springs.	¾ F..	Hess....	Tor.T...	128	32x4	SS...	Wr..	S-E...	Stewart..	3	BR.	B...	B...
Saxon.....B-5-R	445	4	2¾x4	12.1	95.0	5.00–1	Cont....	L.	H...	T.	Cir-Sp...	P.	Wagnr-2	6	A.Kent..	⅞	Schblr...	G.	P..	Unit X..	3	Own.....	Sp.B..	Tor.T....	S-F.	Timken..	Tor.T...	96	30x3	DC..	Wd.	Cant..	Stndrd...	2	Brp.	BR.	B...
Saxon.....S-4	1045	6	2¾x4½	19.8	175.3	4.75–1	Cont....	L.	H...	T.	Cir-Sp...	P.	Wagnr-2	6	Remy...	⅞	Stmbg...	G.	P..	Unit X..	3	Own.....	Sp.B..	Tor.T....	S-F.	Timken..	Tor.T...	112	32x3½	SS...	Opt.	Cant..	Stewart..	3	Brp.	R...	R...
Sayers.....Six-42	1395	6	3½x4½	25.3	224.0	4.75–1	Cont....	L.	....	P.	Sp-Pr...	.	Delco.....	.....	Delco...	⅞	Zenith...	V.	P..	.....	3	Mechanics.	Sp.B.	Springs.	¾F.	Hess....	Springs.	118	32x4	SS...	Wd.	S-E...	Stewart..	3	B...	R	B...
Scripps-Booth.....Six-39	1195	6	2½x4½	19.0	177.0	4.5 –1	North...	I.	H	P.	Sp-Pr...	G.	Remy-2.	6	Remy...	⅞	Marvel..	V.	C..	Unit M..	3	Warner....	Bevel.	Springs.	F...	West.M.	Springs.	112	32x4	SS...	Opt.	S-E...	Stewart..	3	BP.	BR.	B...
Simplex.....V	7000	6	4⅜x6½	45.9	563.7	3.00–1	Own....	L.	C...	P.	Sp-Pr...	G.	Bosch-2.	12	Eismn..	⅞	Newemb	P.	D..	Unit M..	4	Own.....	Sp.B..	Springs.	F...	Own....	Springs.	143½	37x5	QD.	Opt.	S-E...	Stewart..	3	R...	BR.	R...
Singer.....17	4100	6	4 x5½	38.4	414.7	3.77–1	Her-Sp..	T.	H...	P.	Pr.....	G.	West-1..	6	Bosch...	⅞	Rayfld..	V.	D..	Unit M..	4	Muncie....	Sp.B..	Springs.	F...	Timken..	Tor.T...	139	35x5	QD.	Wr..	Cant..	Warner..	3	B...	R...	R...
Standard.....G	2450	8	3½x5	33.8	331.8	4.45–1	Her-Sp..	L.	H...	P.	Pr.....	G.	West-2..	6	West....	⅞	Zenith...	V.	P..	Unit M..	3	G-Lees....	Sp.B..	Springs.	S-F.	Timken..	Springs..	127	34x4½	.....	Wd.	S-E...	Stewart..	3	BR.	R...	R...
Stanley.....Steamer	2800	2	4 x5	12.8	125.6	1.5 –1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	P.	.....	.....	.....	.....	Sp.G.	Rad.Rd	.....	Own....	Engine.	130	35x4½	SS...	Wd.	Ell...	Stewart..	.....	.....	.....	.....
Stearns.....SKL4	1785	4	3½x5½	22.5	248.5	4.50–1	Own....	K	C...	P.	Sp-Pr...	G.	West-2..	12	Remy...	⅞	Schblr...	V.	D..	Unit M..	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.A...	119	34x4	SS...	Wd.	Cant..	Stewart..	3	BR.	BR.	R...
Stearns.....SK8	2575	8	3½x5	33.8	331.8	4.75–1	Own....	K	C...	T.	Sp-Pr...	G.	West-2..	12	Remy...	½	Rayfld..	V.	D..	Unit M..	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.A...	125	35x4½	SS...	Wd.	Cant..	Stewart..	3	BR.	BR.	R...
Stephens.....Salient Six	1585	6	3½x4½	25.3	224.0	4.75–1	Own....	I.	H...	T.	Pr.....	G.	Delco...	6	Delco...	½	Stmbg...	V.	P..	Unit M..	3	Mech.....	Sp.B..	Springs.	F...	Hess....	Springs.	118	32x4	QD.	Wd.	S-E...	Van S...	3	B...	R...	R...
Studebaker.....SH4-40	895	4	3½x5	22.5	192.4	4.08–1	Own....	L.	H...	P.	Cir-Sp...	G.	Wagnr-2	6	Remy...	½	Schblr...	V.	C..	Amid...	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Springs.	112	32x3½	SS...	Wd.	S-E...	Warner..	3	RP.	R...	R...
Studebaker.....EG	1695	6	3½x5	36.0	354.0	3.71–1	Own....	L.	H...	P.	Cir-Sp...	G.	Wagnr..	6	Remy...	⅞	Ball....	V.	C..	Amid...	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Springs.	126	33x4½	SS...	Wd.	S-E...	Warner..	4	RP.	R...	R...
Studebaker.....EH6-50	1295	6	3½x5	29.4	288.6	4.00–1	Own....	L.	H...	P.	Cir-Sp...	G.	Wagnr-2	6	Remy...	½	Ball....	V.	C..	Amid...	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Springs.	119	32x4	SS...	Wd.	S-E...	Warner..	4	RP.	R...	R...
Stutz.....S	2750	4	4⅜x6	30.6	360.8	3.50–1	Own....	T.	H...	P.	Pr.....	G.	Remy-2.	6	Bosch...	⅞	Stmbg...	P.	C..	Unit X..	3	Own.....	Bevel.	Tor.T....	¾ F..	Own....	Tor.T...	130	32x4½	SS...	Wr..	S-E...	Stewart..	3	B...	BR.	R...
Templar.....A445	2085	4	3⅜x5½	18.2	197.0	4.81–1	Own....	I.	C...	P.	Pr.....	G.	Remy-2.	6	Remy...	⅞	Zenith...	V.	P..	Unit M.	3	Detroit....	Sp.B..	Springs.	S-F.	Amer...	Springs.	118	32x4	SS...	Wd.	S-E...	Warner..	3	B...	B...	R...
Velie.....38	1340	6	3½x4½	25.3	224.0	4.75–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Remy-2..	6	Remy...	⅞	Rayfld..	V.	P..	Unit M..	3	Durstn....	Sp.B..	Springs.	S-F.	Timken..	Springs.	115	32x4	SS...	Wd.	½ Ell..	Stewart..	3	B...	R...	R...
Velie.....39	1595	6	3½x5½	29.4	303.1	4.45–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Remy-2..	6	Remy...	⅞	Rayfld..	V.	P..	Unit M..	4	Warner....	Sp.B..	Springs.	S-F.	Timken..	Springs.	124	33x4½	SS...	Wd.	½ Ell..	VanS...	3	B...	R...	R...
Westcott.....S-18	1940	6	3½x5½	29.4	303.1	4.45–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Delco-2..	6	Delco...	⅞	Rayfld..	V.	D..	Unit M..	3	B-Lipe....	Sp.B..	Springs.	S-F.	Timken..	Tor.T...	125	35x4½	SS...	Wd.	Cant..	Warner..	3	BR.	R...	R...
White.....16 Valve Four	5000	4	4½x5½	28.9	326.3	.....	Own....	T.	H...	P.	Pr.....	G.	Lee-N-2.	12	.....	⅞	Own....	V.	D..	Unit M..	4	Own.....	Sp.B..	Springs.	S-F.	Own....	Springs.	137½	35x5	U....	Wd.	S-E...	Stewart..	3	B...	B...	B...
																												124										
Willys-Knight.....88-4	1625	4	4½x4½	27.2	240.5	4.30–1	Own....	K	C...	T.	Sp-Pr...	P.	A-Lite-2.	6	Conn....	⅞	Tiltsn..	V.	C..	Unit X..	3	Own.....	Sp.B..	Tor.T....	F...	Own....	Tor.T...	1[illegible]	4x4½	S...	Wd.	Cant..	Warner..	3	Brp.	R...	R...
Willys-Knight.....88-8	2100	8	3¾x4	36.4	286.3	4.60–1	Own....	K	C...	T.	Pr.....	G.	A-Lite-2.	6	Remy...	⅞	Zenith...	V.	C..	Unit X..	3	Own.....	Sp.B..	Tor.T....	F...	Own....	Tor.T...	[illegible]	[illegible]	SS...	Wd.	Cant..	Warner..	3	Brp.	R...	R...
Willys.....89	1450	6	3½x5½	29.4	303.1	4.00–1	Cont....	L.	H...	P.	Sp-Pr...	P.	A-Lite-2.	6	Conn....	⅞	Tilltsn..	V.	C..	Unit X..	3	Own.....	Sp.B..	Tor.T....	¾ F..	Own....	Tor.T...	[illegible]	[illegible]	SS...	Opt.	Cant..	Stewart..	3	Br..	BR.	R...
Winton.....22A	3150	6	3¾x5½	33.7	347.9	4.45–1	Own....	L.	C...	P.	Pr.....	P.	Bijur-2..	6	Bosch...	⅞	Rayfld..	V.	D..	Unit M..	4	Own.....	Sp.B..	Springs.	F...	Own....	Tor.R...	[illegible]	[illegible]	QD..	Wd.	½ Ell..	Warner..	4	BR.	R...	R...
Winton.....22	3850	6	4½x5½	48.6	524.8	4.08–1	Own....	L.	C...	P.	Pr.....	P.	A-Lite-2.	6	Bosch...	⅞	Rayfld..	V.	D..	Unit M..	4	Own.....	Sp.B..	Springs.	F...	Own....	Tor.R...	[illegible]	[illegible]	QD..	Wd.	½ Ell..	Warner..	4	BR.	R...	R...
Woods.....54	2950	4	2¾x4	12.1	95.0	8.25–1	Cont....	L.	H...	T.	Sp-Pr...	P.	Own....	60	A.Kent..	⅞	Stmbg...	G.	M.	Unit M..	....	Electric...	Worm.	Springs.	S-F.	Own....	Tor.A...	[illegible]	[illegible]	QD..	Wd.	Cant..	Stewart..	3	....	BR.	R...

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Lamp Bulbs — MOTOR WORLD GUIDE — Lamp Bulbs

Car and Model	HEAD LAMPS Volt	HEAD LAMPS Cp.	SIDE LAMPS Volt	SIDE LAMPS Cp.	TAIL LAMP Volt	TAIL LAMP Cp.	DASH LAMP Volt	DASH LAMP Cp.	Fuses Amp.	Socket	Wiring System	Type of Dimmer	Remarks
Abbott-Detroit..	6-8	15	6-8	4H	6-8	2	6-8	2	.....	E.S...	S.....	.....	Dash Ediswan D.
Allen.....HI	6-8	18	6-8	4	6-8	2	6-8	2	15	E.S...	S.....	D. Bulb....	
American.....B	6-8	15	6-8	4H	3-4	2	3-4	2	20	E.S...	S.....	.....	Dash lamp double.
Anderson....20	6-8	21	6-8	12H	6-8	4	6-8	4	.....	E.S...	S.....	.....	
Apperson.....	6-8	18	.....	.....	6-8	2	6-8	2	10	E.D...	D....	Resist.....	
Auburn 39 B...	6-8	15	6-8	4	6-8	2	6-8	2	25	E.S...	S.....	.....	Dash Ediswan D.
Auburn 44.....	6-8	18	6-8	12	6-8	2	6-8	2	.....	E.S...	S.....	.....	Dash Ediswan D.
Austin.....	6-8	24	6-8	4H	6-8	4	.....	.....	.....	E.S...	S.....	.....	
Bell.....18	6-8	18	6-8	4H	6-8	2	6-8	2	15	E.S...	S.....	.....	Dash Ediswan D.
Biddle.....H	6-8	21	6-8	4H	6-8	2	6-8	2	10	E.S...	S.....	.....	Dash Ediswan D.
Brewster.....	12-16	40	12-16	4H	6-8	2	6-8	2	10	E.S...	S.....	.....	Dash Ediswan D.
Briscoe.....	6-8	21	.....	.....	6-8	2	6-8	2	20	E.S...	S.....	Resist.....	Dash Ediswan D.
Bour Davis....	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S...	.....	.....	
Buick.....	6-8	15	6-8	4H	6-8	2	6-8	2	C.B...	E.S...	S.....	.....	
Cadillac.....57	6-8	18	6-8	6	3-4	2	3-4	2	C.B...	E.S...	S.....	.....	
Case.....U	6-8	18	6-8	4H	6-8	2	6-8	2	20	E.S...	S.....	.....	
Chalmers..6-30	6-8	15	6-8	4H	6-8	2	6-8	2	{30 / 15}	E.S...	S.....	.....	
Chandler.....	6-8	16	6-8	4H	6-8	2	6-8	2	20	E.S...	S.....	.....	
Chevrolet..4-90	6-8	12	.....	.....	6-8	2	6-8	2	20	E.D...	S.....	.....	
Chevrolet...FA	6-8	15	.....	.....	6-8	2	6-8	2	20	E.D...	S.....	.....	Dash Edison D.
Chevrolet....D	6-8	15	6-8	4H	6-8	2	6-8	2	20	E.S...	S.....	.....	Dash Edison D.
Cole.....870	6-8	21	.....	.....	3-4	2	3-4	2	.....	E.S...	S.....	.....	Dash lamp Ediswan D.
Columbia..C&D	6-8	15	6-8	4	6-8	2	6-8	2	None	E.S...	S.....	.....	Dash Ediswan D.
Commonwealth.	6-8	15	6-8	4H	6-8	4	6-8	2	.....	E.S...	S.....	.....	Dash lamp Ediswan D.
Crawford..6-40	6-8	15	.....	.....	6-8	4	6-8	2	15	E.S...	S.....	.....	Dash lamp Ediswan D.
Crow-Elkhart..	6-8	15	6-8	4H	6-8	2	6-8	2	10	E.D...	S.....	Series.....	Dash lamp Ediswan D.
Cunningham..V	6-8	15	6-8	4	6-8	4	6-8	4	15	E.S...	S.....	Warner lens.	Tail lamp Ediswan S.
Daniels.....B	6-8	18	6-8	4H	6-8	2	6-8	2	15	E.S...	S.....	Warner lens.	Cowl lamp Candel.
Davis.....	6-8	15	.....	.....	6-8	4	6-8	4	.....	E.D...	S.....	Warner lens.	Dash lamp Ediswan D.
Dispatch.....	12-16	21	.....	.....	12-16	2	6-8	2	2	E.D...	D.....	.....	Two dash lamps.
Dixie Flyer....	6-8	15	.....	.....	3-4	2	3-4	2	10	E.D...	D....	Resist.....	
Doble-Detroit..	12-16	32	.....	.....	6-8	2	6-8	2	None	E.D...	S.....	.....	Dash and tail in Series
Dodge Brothers.	12-16	15	.....	.....	12-16	2	12-16	2	.....	E.S...	S.....	Resist.....	
Dorris....6-80	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S...	S.....	.....	Inspec. lamp, 6 v., 4 cp.
Dort.....11	6-8	15	.....	.....	6-8	4	6-8	2	10	E.S...	S.....	Resist.....	Dash lamp Ediswan D.
Elgin.....A	6-8	21	6-8	4H	6-8	2	6-8	2	20	E.S...	S.....	.....	
Elcar.....	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S...	S.....	.....	
Empire.....	6-8	15	6-8	4H	3-4	2	3-4	2	20	E.S...	S.....	.....	Dash lamp Ediswan D.
Fiat.....E-17	6-8	15	6-8	4H	6-8	2	6-8	4	.....	E.S...	.....	Warner lens.	Tonneau lamp 6 v. 2 cp.
Ford.....T	6-8	15	.....	.....	.....	.....	.....	.....	.....	E.D...	.....	.....	
Franklin.....9	12-16	21	12-16	4H	6-8	2	{6-8 / 12-16}	{2 / 2}	10	E.D...	.....	.....	Panel 12-16 v., 2 cp.
F. R. P...45-B	12-16	25	12-16	6	12-16	3	12-16	3	6-3	E.S...	S.....	.....	
F. R. P. Premier 6-O	6-8	21	6-8	4H	6-8	2	6-8	2	C.B...	E.S...	S.....	.....	Dash lamp double.
Glide.....6-40	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S...	S.....	.....	
Grant.....G	6-8	15	6-8	4H	6-8	2	6-8	2	20	.....	S.....	Resist.....	Dash lamp Ediswan D.
HAL.....21A	6-8	18	.....	.....	6-8	2	6-8	4	15	E.S...	.....	Warner lens.	H'dlamps doub., tail and dash single.
Halladay.....	6-8	15	6-8	4H	6-8	4	6-8	2	.....	E.S...	S.....	.....	Dash Ediswan D.
Harroun....A-1	6	15	.....	.....	3	2	3	2	15	E.S...	S.....	Resist.....	Dash Ediswan D.
Haynes.....	6-8	15	6-8	12H	6-8	2	6-8	2	5	E.D...	D....	Series.....	
Hollier.....	6-8	15	.....	.....	6-8	2	6-8	2	20	E.S...	S.....	Series.....	
Hudson.....	6-8	15	.....	.....	3-4	2	3-4	2	.....	E.S...	S.....	Resist.....	Dash lamp Ediswan D.
Hupmobile....R	6-8	15	6-8	2	6-8	2	6-8	2	15	E.S...	S.....	Resist.....	
Inter-State...T.	6-8	15	.....	.....	6-8	2	6-8	2	10	E.D..	S.....	Resist.....	
Jackson....349	6-8	15	.....	.....	6-8	2	6-8	2	20	E.D...	S.....	.....	
Jones....26AB	6-8	21	6-8	2	6-8	2	6-8	2	15	E.S...	S.....	Resist.....	
Jordan....5-60	6-8	18	6-8	4H	6-8	3	6-8	3	20	E.S...	S.....	.....	
King.....F	6-8	18	6-8	4H	6-8	2	6-8	2	10	E.S...	S.....	Series.....	
Kissel.....	6-8	18	....	....	6-8	2	6-8	2	20	E.D...	S.....	Series.....	Dash lamp single.
Kline.... 6-38	6-8	15	6-8	4	6-8	2	6-8	2	10	E.S...	S.....	.....	Fuses 5 amp. in all but hdlps.
Lexington 6R..	7	30	.....	.....	6	2	6	4	15	E.S...	S.....	D. Bulb....	Dash lamp Ediswan D.
	.....	32	.....	.....	.....	.....	.....	.....	5	.....	.....	Hdlamps...	Spotlight, 7 v., 21 cp., double contact.
	7	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Liberty....10B	6-8	15	.....	H	6-8	2	6-8	2	.....	E.S...	S.....	.....	
Locomobile....	6-8	21	6-8	6	6-8	4	6-8	2	10	E.S...	S.....	Resist.....	Tonneau & Steplights 6-8v..2 cp.
McFarlan.....X	6-8	24	6-8	12H	6-8	2	6-8	2	10	E.S...	S.....	Warner lens.	Dash lamp Ediswan D.
Madison.....	6-8	15	6-8	6H	6-8	4	6-8	4	5	E.S...	S.....	Series.....	Dash lamp Ediswan D.
Maibohm A....	12	18	12	4	6	2	6	2	None	E.S...	S.....	Resist.....	
B....	6-8	18	6-8	4	6-8	2	3-4	2	15	E.S...	S.....	Resist.....	
Marmon....34	6-8	24	6-8	8H	6-8	4	6-8	4	20	E.S...	S.....	Warner lens.	
Maxwell.... 25	12-16	24	12-16	.....	12-16	2	12-16	2	20	E.S...	S.....	Resist.....	
Mercer...22-73	12-16	24	12-16	4	12-16	4	12-16	4	10	E.S...	S.....	Clear lens..	
Metz.....25	6-8	15	6-8	4H	6-8	2	6-8	2	50	E.D...	S.....	Shad. rays..	
Mitchell...D-40	6-8	15	.....	.....	6-8	2	6-8	2	20	E.D...	S.....	Series.....	
Moline-Knight	6-8	15	6-8	6H	6-8	2	6-8	4	20	E.S...	S.....	Deflect.....	
Monroe.....	6-8	15	6-8	2H	6-8	2	6-8	2	20	E.S...	S.....	D. Bulb....	
Moon.....	6-8	15	.....	.....	6-8	2	6-8	4	C.B...	E.S...	S.....	Warner lens.	Dash lamp Ediswan D.
Murray....70T	6-8	18	6-8	4H	6-8	2	6-8	2	15	E.D...	.....	Warner lens.	Dash and tail Ediswan S.
													Fuses 5 amp. in dimmer
Nash.....	6-8	14	6-8	4H	6-8	2	6-8	2	C.B...	E.S...	S.....	.....	Dash lamp double.
National.....	6-8	18	6-8	4H	6-8	2	6-8	2	.....	E.S...	S.....	.....	Dash lamp double.
Nelson.....	6-8	15	6-8	4H	6-8	2	6-8	2	5-30	E.D...	D....	.....	Dash lamp 6-8v., 2 c.p.
Oakland 34-B	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S...	S.....	Resist.....	Dash lamp Ediswan S.
Oldsmobile..37	6-8	15	6-8	4H	6-8	2	6-8	2	.....	E.S...	S.....	.....	Dash lamp Ediswan D.
Olympian.....	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S...	S.....	Resist.....	
Overland.....	6-8	16	.....	.....	3-4	2	3-4	2	20	E.D...	S.....	Series.....	Dash and tail Ediswan S.
Owen O-36....	28	21	28	4H	28	2	28	2	10	E.D...	D....	.....	
M-25....	14	21	14	4H	14	2	14	2	10	E.D...	.....	.....	Headlamps Ediswan S.
W-42....	28	21	28	4H	28	2	28	2	10	E.D...	D....	.....	
Paige.....	6-8	15	6-8	4H	6-8	2	6-8	2	20	E.S...	S.....	.....	
Paterson..6-45	6-8	12	6-8	8H	3-4	2	3-4	.....	2	.....	.....	.....	Dash lamp Ediswan D.
Packard.....	6-8	24	6-8	6	6-8	2	6-8	4	10	E.S...	S.....	Warner lens.	Aux. headlights, 6 cp.
Pan American.	6-8	15	.....	.....	6-8	2	6-8	2	20	E.S...	S.....	D Bulb....	Dash lamp Ediswan D.
Peerless....56	6-8	15	6-8	4	6-8	2	6-8	2	10	E.S...	S.....	Warner lens.	
Pierce-Arrow...	6-8	21	6-8	4	6-8	4	6-8	4	10	E.S...	S.....	Sutterly....	
Pilot.....6-45	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S...	S.....	Resist.....	
Regal.....J	6-8	21	.....	.....	6-8	4	6-8	2	.....	E.S...	S.....	Resist.....	
Reo.....M	6-8	15	.....	.....	3-4	2	3-4	2	5	E.D...	D....	Series.....	
Reo.....T	6-8	15	.....	.....	3-4	2	3-4	2	5	.....	.....	Resist.....	
Saxon.....	6-8	12	.....	.....	6-8	2	6-8	2	15	E.S...	S.....	Resist.....	
Scripps-Booth.	6-8	15	6-8	4H	6-8	2	6-8	2	.....	E.S...	S.....	D Bulb	Inspec. lamp, 6 v., 2 cp.
Simplex.....V	12-16	40	12-16	4H	6-8	2	6-8	2	10	E.S...	S.....	.....	Tail lamp double.
Singer 17	6-8	32	.....	.....	6-8	2	6-8	2	5	E.S...	S.....	Warner lens.	Tail lamp double.
Standard.....G	6-8	18	6-8	4	6-8	2	6-8	2	15	E.S...	S.....	Warner lens.	
Stanley Steamer	6-8	18	6-8	4H	6-8	2	6-8	2	.....	E.S...	S.....	Controllite .	
Stearns SK8...	12-16	24	12-16	4H	12-16	2	12-16	2	20	E.S...	S.....	.....	
SKL-4.....	12-16	18	12-16	4H	12-16	2	12-16	2	20	E.S...	S.....	.....	
Stephens.....	6-8	21	6-8	4	6-8	2	6 8	2	.....	E.S...	S.....	.....	
Studebaker SH, EH, BS	6-8	12	.....	.....	6-8	2	6-8	2	10	E.S...	S.....	Resist.....	
Stutz.....S	6-8	21	6-8	4H	6-8	2	6-8	2	.....	E.D...	D....	Warner lens.	
Templar.....	6-8	18	6-8	4	6-8	2	6-8	2	.....	E.S...	S.....	Warner lens.	
Velie.....38-39	6-8	15	6-8	4	3-4	2	3-4	2	5	E.S...	S.....	.....	Dash lamp double.
Westcott..S-18	6-8	15	6-8	4H	3-4	2	3-4	2	.....	E.S...	S.....	Warner lens.	Dash lamp double.
White.....	12-16	25	12-16	4H	12-16	2	12-16	4	C.B...	E.D...	D....	Warner lens.	
Willys-Knight.	6-8	16	.....	.....	3-4	2	3-4	2	.....	E.D...	S.....	Series.....	Tail lamp Ediswan S.
Winton...33-48	6-8	21	6-8	12	6-8	4	6-8	2	20	E.S...	S.....	.....	
Woods..... 54	60	25	30	8H	30	10	30	10	10	E.D...	D....	.....	

ABBREVIATIONS:—C.B.—Circuit Breaker. Candel.—Candelabra. D.—Double wiring system. E.D.—Ediswan double contact. E.S.—Ediswan single contact. H.—Small bulbs in headlamps for city driving. Resist.—Resistance. S.—Single wiring system. Series—Series connection.

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Tires and Tubes — MOTOR WORLD GUIDE — Tires and Tubes

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	31x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
ACME	Plain	16 00	17 20	s18 10	23 00	s23.90	24.40	25.80	s27.50	s30.80	s31.90	33.20	34.30	35.50	36.70	33.00	s45.30	46.70	48.30	49.60	51.10	52.60	57.70	59.50	61.40	s76.80	s78.90
	Kam Tread	.....	s17.90	.....	s24.20	s25.10	25.60	.....	.....	.....	s33.50	35.00	36.10	37.40	.....	.....	.....	qc49.00	50.70	52.10	53.70	55.30	60.60	62.60	64.30	.....	.....
	Dimple	18.40	19.60	s21.00	26.40	s27.40	28.00	29.80	s31.60	s35.40	s33.70	38.30	39.60	40.90	42.20	43.70	s52.10	53.70	55.50	57.10	58.80	60.50	66.30	68.50	70.50	s88.30	s90.70
	Hemisphere	20.20	s21.60	.....	29.00	.....	30.80	32.70	.....	.....	s40.50	qc42.10	43.60	44.90	45.40	s48.10	.....	.....	qc61.00	62.80	64.70	66.50	s73.00	s75.20	77.70	.....	.....
	Gray and Red Tubes	3.65	3.85	4.15	4.95	5.15	5.45	5.85	6.05	6.05	6.25	6.40	6.65	6.75	6.95	7.15	8.15	8.35	8.45	8.60	8.80	9.05	10.00	10.30	10.55	11.20	11.50
ADVANCE	Plain	s12.75	s13.40	.....	s17 45	s18.35	20.40	s23.80	.....	.....	s26.75	27.25	28.55	29.15	30.15	31.05	.....	s38.05	s39.25	41.10	41.75	43.45	.....	s46.90	s49.65	s74.55	.....
	Non-Skid	s13.35	s14.10	.....	s18.25	s19.30	21.40	s24.95	.....	.....	s28.00	28.60	29.85	30.65	31.50	32.60	.....	s39.95	s41.30	43.10	43.90	45.60	.....	s49.20	s52.15	s78.20	.....
AJAX	Plain	s13.65	s14.45	s18.75	18.60	s19.50	22.55	26.95	23.85	s23.95	30.25	30.80	32.10	32.65	31.10	34.55	.....	.....	43.90	45.55	46.10	47.80	s52.45	52.50	54.45	.....	.....
	Non-Skid	s15.30	s16.10	s.....	s21.35	s22.20	25.30	29.70	.....	s 3.25	33.55	34.10	35.40	35.95	37.40	37.85	qc46.10	qc47.20	48.30	49.95	50.50	52.20	56.85	s56.90	58.85	s78.35	s79.30
	Road King	s14.70	s15.55	.....	s19.95	s20.95	24.25	.....	.....	.....	32.50	33.10	34.55	35.10	.....	37.10	.....	48.40	48.95	51.20	52.05	53.90	61.15	61.40	s63.25	.....	.....
	Gray Tubes	3.20	3.00	3.40	3.75	3.85	4.00	4.30	4.50	4.75	4.85	5.05	5.25	5.35	5.50	5.70	6.15	6.35	6.50	6.60	6.85	7.00	8.40	8.50	8.60	9.20	9.35
	Red Tubes	3.50	3.75	4.00	4.60	4.75	4.90	5.15	5.40	5.75	5.90	6.05	6.25	6.35	6.50	6.70	7.60	7.80	8.05	8.30	8.50	8.75	9.90	10.00	10.15	10.85	11.05
AMAZON	Ribbed	.....	qs16.75	.....	qs21.70	.....	qc25.05	.....	.....	.....	.....	qc33.90	qc36.30	qc36.90	.....	.....	.....	.....	qc49.20	qc51.45	.....	.....	.....	.....	.....	.....	.....
	Non-Skid	qs16.70	qs17.65	.....	qs22.85	.....	qc26.35	.....	.....	.....	qs31.75	qc35.70	c38.20	c38.85	.....	.....	.....	qc50.35	c51.80	c54.15	c54.90	qc57.45	c61.75	.....	c66.95	.....	.....
	Red-Gray Tubes	3.15	3.50	.....	4.10	.....	4.25	4.50	.....	.....	5.70	5.90	6.15	6.25	6.40	6.50	.....	7.20	7.30	7.45	7.65	7.95	8.55	9.00	9.10	9.25	10.50
AMERICAN	Ribbed or Plain	15.00	16.00	.....	20.45	22.10	26.35	.....	.....	.....	32.30	33.00	34.70	35.45	.....	.....	.....	.....	47.40	49.60	50.30	.....	58.35	.....	61.90	.....	.....
	Triple A Non-Skid	15.80	16.80	.....	21.35	23.00	27.25	.....	.....	.....	33.30	34.00	35.70	36.45	.....	.....	.....	.....	48.40	50.60	51.35	53.65	59.40	60.30	62.95	.....	.....
	Seal Brown Tubes	3.00	3.25	.....	3.75	3.80	3.85	4.20	.....	.....	4.65	4.80	5.00	5.15	.....	5.60	6.20	6.25	6.30	6.40	6.55	6.70	7.65	7.75	7.90	9.35	9.50
	Red Indian Tubes	3.25	3.50	.....	4.20	4.25	4.30	4.60	.....	.....	5.40	5.50	5.70	5.80	6.00	6.15	6.95	7.00	7.10	7.20	7.35	7.65	8.60	8.85	8.95	10.20	10.40
ARABIAN	Fluted Tread	.....	qs15.60	.....	qs20.05	.....	24.45	.....	.....	.....	s31.05	qc31.90	32.80	33.00	.....	36.05	.....	.....	qc43.45	s46.75	48.45	49.05	.....	.....	54.40	.....	.....
	Non-Skid	.....	qs16.40	.....	qs21.10	.....	25.65	.....	.....	.....	32.65	qc33.90	34.45	34.65	.....	38.95	.....	.....	qc45.60	49.05	50.80	51.50	.....	.....	57.10	.....	.....
	Tubes	3.05	3.10	.....	3.65	3.75	3.90	4.35	.....	.....	4.90	5.05	5.25	5.40	5.70	5.75	.....	.....	6.65	6.80	7.05	7.25	.....	8.50	8.45	.....	.....
ARCADIA	Plain	qs14.00	qs15.20	.....	s19.60	.....	22.25	27.85	.....	qs32.70	s29.80	30.40	31.65	32.60	37.60	31.55	.....	.....	43.40	45.25	45.95	47.90	53.25	s59.15	56.00	s99.75	s103.25
	Non-Skid	.....	qs15.95	.....	s20.60	.....	23.45	29.15	.....	qs34.40	31.45	31.90	33.35	34.25	39.45	36.45	.....	.....	45.70	47.45	48.25	50.25	55.75	s62.40	58.95	s105.00	s108.50
	Red Tubes	3.60	3.70	.....	4.50	.....	4.70	5.60	.....	6.25	6.00	6.10	6.40	6.50	7.30	6.80	.....	.....	7.60	7.75	7.90	8.05	8.95	10.10	9.35	11.00	11.20
	Gray Tubes	3.25	3.35	.....	4.00	.....	4.25	4.50	.....	5.10	4.75	4.95	5.10	5.20	5.85	5.50	.....	.....	6.55	6.65	6.75	6.85	7.90	8.90	8.20	9.65	9.80
ARCHER	Ribbed Tread	.....	25.00	.....	31.00	.....	qc37.70	.....	.....	.....	43.00	qc47.40	qc48.65	qc49.90	.....	qc52.40	.....	qc54.50	qc55.90	qc57.30	qc58.60	.....	qc69.15	qc70.95	qc72.35	.....	qc87.30
	Non-Skid	.....	.....	.....	.....	.....	qc39.70	.....	.....	.....	.....	qc49.45	qc50.65	qc51.95	.....	qc54.40	.....	qc56.55	qc57.95	qc59.25	qc60.60	qc61.90	qc71.20	qc73.00	qc74.35	.....	qc89.35
	Gray Tubes	.....	3.15	.....	3.25	.....	3.40	.....	.....	.....	.....	4.60	4.75	4.85	.....	5.10	.....	6.00	6.05	6.15	6.25	6.35	7.35	7.50	7.65	.....	8.50
	Red Tubes	.....	4.15	.....	4.25	.....	4.40	.....	.....	.....	.....	6.00	6.15	6.30	.....	6.55	.....	7.80	7.85	8.00	8.15	8.20	9.55	9.75	9.95	.....	10.80
ARMSTRONG	Red Tubes	.....	4.00	4.50	4.75	.....	4.95	5.20	.....	5.80	5.90	6.00	6.10	6.25	6.40	6.55	7.65	7.80	7.95	8.10	8.35	8.60	9.45	9.60	9.75	11.60	11.75
	Plain	.....	19.00	.....	23.75	.....	27.00	31.25	.....	.....	37.00	38.00	40.00	40.50	41.50	42.00	.....	.....	51.50	57.00	60.50	.....	66.00	73.00	68.50	.....	.....
	Non-Skid	.....	21.25	.....	26.00	.....	31.00	34.25	.....	.....	40.75	42.00	43.00	43.50	48.75	46.00	.....	.....	59.50	62.50	66.50	.....	72.50	80.00	74.75	.....	.....
	Plain Cord	.....	.....	.....	35.20	.....	37.60	40.05	.....	.....	46.20	47.85	49.10	50.45	.....	.....	53.90	55.30	56.75	58.15	59.50	.....	70.60	.....	73.90	.....	.....
	Non-Skid Cord	.....	.....	.....	39.65	.....	42.35	45.10	.....	.....	52.05	53.85	55.30	56.75	.....	.....	60.65	62.20	63.85	65.40	67.00	.....	79.40	.....	83.20	.....	.....
BALTIMORE	Concord	20.17	20.64	.....	25.07	o 27.80	29.50	32.07	.....	.....	o 34.45	35.44	o 36.72	38.02	o 39.47	40.75	.....	45.72	47.23	o 48.68	51.36	o 52.77	o 59.59	62.45	o 65.12	o 86.21	93.51
	Box Tread	22.19	23.27	.....	29.10	o 30.03	33.22	36.03	.....	.....	o 40.15	41.47	o 42.68	44.22	o 45.65	48.18	.....	50.00	51.81	o 54.89	59.62	o 60.83	o 67.76	70.40	o 72.05	o 89.65	104.28
	Tubes	3.25	3.34	.....	4.30	4.45	4.60	4.95	.....	.....	5.45	5.55	5.75	5.95	6.05	6.20	.....	7.25	7.45	7.60	7.85	8.10	8.90	9.15	9.45	.....	11.05
	Wil-Lox Non-Skid	.....	qs14.10	.....	qs18.25	qs19.30	q21.40	.....	.....	.....	qs28.00	.....	qc29.85	qc30.65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
BATAVIA	Plain	.....	qs14.35	.....	qs18.25	.....	qc21.35	.....	.....	.....	.....	qc29.05	qc30.45	qc31.20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Ribbed	.....	.....	.....	.....	.....	c23.70	c26.90	.....	.....	.....	qc32.30	c33.90	c34.60	qc36.20	cs36.75	cs43.15	qc44.55	c46.00	c48.10	c48.75	cs50.95	c56.40	.....	c59.80	.....	.....
	Security Tread	qs14.40	qs16.80	.....	qs21.35	qs23.00	c24.95	c28.35	.....	.....	qs33.30	c34.00	c35.70	c36.45	c33.10	c38.70	cs45.45	qc46.90	c48.40	c50.60	c51.35	c53.65	c59.40	c60.30	c62.95	cs97.25	cs99.00
	Gray Tubes	2.95	3.05	.....	3.45	3.65	3.80	4.10	.....	.....	4.90	5.05	5.25	5.35	5.45	5.55	6.50	6.60	6.65	6.75	6.90	7.10	8.10	8.25	8.04	9.20	9.45
BERGOUGNAN	Plain	s14.85	s17.70	.....	s21.60	s22.85	25.20	s27.85	.....	35.25	s30.90	32.85	35.20	37.20	s33.00	s10.00	s46.55	47.60	50.35	50.95	51.45	s53.05	59.45	60.70	62.35	s80.40	83.10
	Non-Skid	s16.70	s18.10	.....	s25.20	s26.30	27.55	s29.55	.....	39.65	s31.90	36.50	39.30	40.75	s42.65	s43.70	s52.20	52.90	53.85	55.05	56.70	s59.10	65.15	68.15	69.65	s88.75	91.80
	Red Tubes	3.75	3.80	.....	4.45	4.80	4.85	5.20	.....	6.60	6.05	6.25	6.60	6.75	6.95	7.15	7.35	8.10	8.20	8.30	8.65	8.90	9.70	10.00	10.15	11.15	11.20
BESAW	Blackford Non-Skid	.....	qs15.70	.....	qs19.95	qs21.35	c23.60	.....	.....	.....	qs31.50	qc32.05	qc33.90	34.50	.....	.....	.....	.....	.....	cs48.60	.....	.....	.....	.....	.....	.....	.....
	BeSaw Non-Skid	.....	24.25	.....	30.30	31.35	35.05	38.00	.....	.....	42.30	43.70	45.00	46.55	44 10	50.75	.....	.....	54.60	57.90	62.75	64.10	71.35	74.15	75.90	.....	.....
	BeSaw Plain	.....	20.50	.....	24.90	27.65	29.30	31.80	.....	.....	31.30	35.55	36.90	38.15	39.30	40.50	.....	.....	46.95	48.40	49.70	51.10	57.80	59.40	60.90	.....	.....
BOONE	Smooth	.....	14.20	.....	18.15	19.40	21.10	.....	.....	.....	28.25	28.95	30.15	30.95	.....	33.10	38.85	.....	41.35	43.30	43.95	.....	50.75	.....	53.80	.....	.....
	Ribbed Non-Skid	.....	15.60	.....	19.95	21.34	23.21	.....	.....	.....	31.10	31.85	33.15	34.05	.....	36.40	42.70	.....	45.50	47.60	48.45	.....	55.80	.....	59.30	.....	.....
	Special Non-Skid	.....	18.50	.....	23.50	25.30	27.45	.....	.....	.....	36.65	37.40	39.25	40.10	.....	42.55	50.00	.....	53.25	55.60	56.50	.....	65.35	.....	69.25	.....	.....
	Black Tubes	.....	3.40	.....	3.80	4.00	4.20	.....	.....	.....	5.40	5.55	5.75	5.90	.....	6.15	7.15	.....	7.30	7.40	7.60	.....	8.90	.....	9.25	.....	.....
	Red Tubes	.....	3.95	.....	4.50	4.70	4.95	.....	.....	.....	6.40	6.60	6.75	6.95	.....	7.20	8.40	.....	8.65	8.80	8.95	.....	10.50	.....	10.95	.....	.....
	Gray Tubes	.....	3.05	.....	3.45	3.65	3.80	.....	.....	.....	4.90	5.05	5.25	5.35	.....	5.55	6.50	.....	6.65	6.75	6.90	.....	8.10	.....	8.40	.....	.....
BOWERS	Plain	18.55	19.65	.....	25.40	28.05	29.65	31.70	.....	.....	34.90	36.00	37.60	38.90	41.95	44.05	.....	.....	52.25	54.35	56.40	.....	67.70	69.30	70.80	.....	99.95
	Grip Tread	20.60	23.60	.....	31.15	32.15	34.90	38.00	.....	.....	41.05	42.70	45.05	46.70	48.20	49.30	.....	.....	55.40	58.50	63.60	.....	72.65	75.50	77.05	.....	111.85
	Gray Tubes	3.30	3.80	.....	4.10	4.35	4.60	4.85	.....	.....	5.95	6.10	6.40	6.50	6.60	6.75	.....	.....	7.70	8.10	8.40	.....	9.50	9.70	10.00	.....	11.75

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
BRAENDER	Plain	qs13.95	qs14.30	qs18.10	q18.35	qs19.15	q21.30	q24.05	qs30.00	qs27.65	q28.20	q28.70	q30.15	q30.80	q32.65	q31.90	41.25	40.05	41.35	43.25	43.95	44.60	49.40	55.90	53.35	qs82.95	cs87.75
	Non-Skid	qs16.20	qs16.45	qs21.00	q21.30	qs22.20	q24.70	q27.90	qs34.80	qs32.05	q32.75	q33.35	q35.00	q35.75	q37.90	q37.00	47.75	46.40	47.95	50.15	51.00	51.75	57.30	64.80	61.90	qs96.20	cs101.75
	Gray Tubes	3.25	3.40	3.60	4.15	4.25	4.40	4.50	5.30	5.30	5.40	5.65	5.75	5.85	6.10	6.30	7.00	7.10	7.20	7.35	7.55	7.90	8.90	9.05	9.15	10.00	10.25
	Red Tubes	3.60	3.70	4.00	4.60	4.70	4.80	5.00	6.00	5.90	6.00	6.20	6.40	6.60	6.80	7.00	7.80	7.90	8.10	8.20	8.40	8.70	9.80	10.00	10.20	11.00	11.20
BRUNSWICK	Plain	qs13.30	qs14.35	.....	qs18.25	s19.60	21.35	c24.20	.....	.....	qs28.45	c29.05	c30.45	c31.20	c32.60	c33.10	c38.85	c40.05	c41.35	c43.30	c43.95	c45.80	c50.75	c51.55	c53.80	s83.10	c92.45
	Skid Not	qs15.60	qs16.80	.....	qs21.35	qs23.00	24.95	c28.35	.....	.....	qs33.30	c34.00	c35.70	c36.45	c38.10	c38.70	c45.45	c46.90	c48.40	c50.60	c51.35	c53.65	c59.40	c60.30	c62.95	s103.90	c113.00
	Gray Tubes	2.85	2.90	.....	3.45	3.60	3.75	4.10	.....	.....	4.70	4.85	5.05	5.20	5.45	5.65	6.30	6.40	6.50	6.70	6.95	7.30	7.95	8.15	8.25	9.20	9.45
	Red Tubes	3.30	3.40	.....	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.60	7.00	7.15	7.30	7.45	7.70	8.30	8.65	8.85	9.00	10.45	10.80
	Ribbed Tread	.....	qs15.95	.....	qs20.30	.....	qc23.70	.....	.....	.....	qs31.65	qc32.30	qc33.90	qc34.65	.....	.....	qc43.20	qc44.55	qc46.00	qc48.05	qc48.80	.....	c56.45	.....	c59.80	.....	.....
BULL	Plain	qs15.50	qs16.10	.....	qs20.55	qs22.45	24.25	c27.35	.....	.....	qs31.35	q31.90	c33.75	c34.25	c35.60	cs42.65	.....	.....	cs46.95	c48.65	c49.45	cs60.45	c57.25	cs58.20	c60.35	.....	.....
	Non-Skid	qs17.40	qs18.05	.....	qs22.95	qs24.55	27.15	31.00	.....	.....	qs35.45	q36.05	c38.15	c38.80	c40.85	cs48.80	.....	.....	cs52.60	c54.65	c55.30	cs67.50	c67.45	cs68.70	c71.00	.....	.....
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.20	5.60	5.50	5.65	5.90	6.15	6.30	6.60	.....	.....	7.30	7.45	7.70	8.30	8.65	8.85	9.00	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65	.....	.....	6.50	6.70	6.95	7.30	7.95	8.15	8.25	.....	.....
CAPITOL	Plain	qs13.90	qs13.65	.....	qs17.90	qs18.60	20.80	24.15	.....	c29.00	qs27.15	c27.95	29.15	c29.70	c33.70	c31.75	.....	.....	c39.75	c41.70	c42.35	c43.60	c47.70	cs53.15	c50.50	.....	.....
	Non-Skid	qs14.85	qs14.30	.....	qs18.35	qs19.70	21.75	25.80	.....	c30.20	qs28.50	c29.20	30.40	c31.25	c33.35	c33.10	.....	.....	c42.00	c43.55	c44.45	c46.05	c50.05	cs56.55	c52.95	.....	.....
	Redman Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	.....	.....	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Paragum Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	.....	.....	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
CARLISLE	Lightning Tread	.....	.....	.....	.....	.....	qc38.50	.....	.....	.....	.....	qc48.75	qc50.25	qc51.50	.....	.....	c55.00	qc56.50	c58.00	c59.25	c60.75	.....	c72.00	.....	c75.50	.....	cs91.50
CARSPRING	Plain	qs18.20	qs19.55	.....	s25.30	.....	29.15	36.30	.....	qs36.75	s35.20	36.00	37.70	38.50	44.55	41.00	.....	.....	51.40	53.70	54.45	56.65	62.50	s69.85	66.25	s102.85	s105.60
	"C" Tread	.....	qs20.45	.....	s26.50	.....	30.55	38.25	.....	qs38.50	s36.95	37.75	39.60	40.50	46.75	43.15	.....	.....	53.90	56.25	57.15	59.50	65.70	s73.70	69.55	s108.35	s111.00
	Suction Tread	.....	.....	.....	s29.75	.....	34.25	42.90	.....	qs42.70	s41.40	42.30	44.25	45.35	52.25	48.20	.....	.....	60.35	63.00	64.10	66.75	73.50	s82.50	77.80	s121.00	s124.30
	Red Tubes	3.60	3.70	.....	4.50	.....	4.70	5.60	.....	6.25	6.00	6.10	6.40	6.50	7.30	6.80	.....	.....	7.60	7.75	7.90	8.05	8.95	10.10	9.35	11.00	11.20
	Gray Tubes	3.25	3.35	.....	4.00	.....	4.25	4.50	.....	5.10	4.75	4.95	5.10	5.20	5.85	5.50	.....	.....	6.55	6.65	6.75	6.85	7.90	8.90	8.20	9.65	9.80
CENTURY-PLAINFIELD	Ribbed	.....	18.25	.....	23.40	24.80	27.05	.....	.....	.....	36.35	37.60	39.30	40.15	.....	44.40	49.90	51.25	52.85	54.85	55.95	.....	63.35	65.85	66.35	.....	.....
	Non-Skid	.....	19.20	.....	24.65	26.10	28.50	.....	.....	.....	38.25	39.60	41.40	42.25	.....	46.75	52.50	53.95	55.65	57.75	58.90	.....	66.70	69.30	69.85	97.25	92.50
	Tubes	3.45	3.55	.....	4.55	4.70	4.90	5.25	5.55	.....	5.75	5.85	6.10	6.30	6.35	6.55	7.35	.....	7.90	8.05	8.35	8.60	9.45	9.65	10.00	11.45	11.65
CHAMPION	Non-Skid	14.45	14.10	.....	18.25	.....	21.40	23.80	.....	.....	28.00	28.60	29.85	30.65	.....	35.90	.....	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	.....	.....
	Champion Gray Tubes	3.10	3.05	.....	3.75	3.80	3.85	4.55	.....	.....	4.75	4.85	5.00	5.15	5.80	6.00	.....	6.15	6.25	6.45	6.65	7.60	7.80	8.60	8.10	.....	.....
	Red Tubes	3.40	3.70	.....	4.05	4.30	4.40	4.60	.....	.....	5.50	5.65	5.95	6.10	6.25	6.50	.....	7.45	7.50	7.70	7.80	8.05	9.15	9.30	9.40	.....	.....
CHESTER	Plain	s15.50	s16.10	s20.55	.....	s22.45	24.25	27.35	.....	.....	s31.35	31.90	33.75	34.25	s35.60	s42.65	.....	.....	s46.95	48.65	49.45	s60.45	57.25	s58.20	60.35	.....	.....
	Non-Skid	s17.40	s18.05	.....	s22.95	s24.55	27.15	31.00	.....	.....	35.45	36.05	38.15	38.80	s40.85	s48.80	.....	.....	s52.60	54.65	55.30	s67.50	67.45	s68.70	71.00	.....	.....
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.20	5.60	5.50	5.65	5.90	6.15	6.30	6.60	.....	.....	7.30	7.45	7.70	8.30	8.65	8.85	9.00	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65	.....	.....	6.50	6.70	6.95	7.30	7.95	8.15	8.25	.....	.....
CLEVELAND-STANDARD	Plain	19.80	20.50	.....	25.30	26.80	28.15	31.90	.....	34.10	34.50	35.65	37.40	38.50	39.60	40.70	.....	47.55	47.95	48.80	50.15	51.45	58.30	60.00	61.60	79.20	88.00
	Non-Skid	20.90	23.60	.....	29.90	31.90	34.75	36.30	.....	39.15	40.00	40.90	41.80	42.90	44.20	45.50	49.50	51.05	51.90	53.25	56.10	58.10	64.20	67.75	69.75	90.80	96.80
	Red Tubes	3.65	3.70	4.35	4.66	4.65	4.80	5.20	5.40	5.85	5.95	6.15	6.30	6.45	6.90	6.95	7.80	7.90	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
	Gray Tubes	3.40	3.50	3.75	4.30	4.40	4.50	5.00	5.20	5.35	5.50	5.65	5.80	6.00	6.20	6.40	7.15	7.25	7.40	7.50	7.70	8.00	8.90	9.10	9.20	10.55	10.75
COLUMBIA	Plain	13.80	14.20	17.30	18.45	19.45	21.50	27.90	.....	29.85	28.25	28.80	30.10	30.80	37.20	32.85	.....	.....	41.60	43.45	44.15	45.90	49.55	57.85	52.55	.....	.....
	Non-Skid	14.50	14.95	.....	19.35	30.25	22.45	29.25	.....	.....	29.65	30.20	31.62	32.40	39.00	34.50	.....	.....	43.65	45.65	46.35	48.25	52.05	60.75	55.20	.....	.....
	Gray Tubes	2.95	3.00	3.40	3.75	3.80	3.85	4.55	.....	4.95	4.75	4.85	5.00	5.15	5.75	5.50	.....	.....	6.25	6.45	6.65	6.85	7.80	8.60	8.10	.....	.....
	Red Tubes	3.30	3.35	3.80	4.20	4.25	4.30	5.00	.....	5.50	5.30	5.40	5.55	5.70	6.45	6.10	.....	.....	7.00	7.15	7.35	7.65	8.70	9.50	8.95	.....	.....
COMBINATION	Plain	qs12.75	qs13.70	.....	qs17.85	qs18.85	20.55	q23.25	.....	.....	qs27.35	27.85	29.20	29.85	31.30	31.80	39.20	.....	39.75	41.50	42.20	43.90	s46.40	47.15	49.10	.....	cs70.25
	Hold-on Non-Skid	qs15.05	qs16.05	.....	qs20.55	qs21.55	23.70	q26.85	.....	.....	qs31.35	32.00	33.65	34.26	35.90	36.25	44.15	.....	46.75	48.85	49.60	51.60	s57.25	58.10	60.67	.....	cs84.30
	Gray Tubes	3.00	3.15	.....	3.75	3.80	3.90	4.15	.....	.....	5.00	4.25	5.35	5.50	5.65	5.90	6.55	.....	6.75	6.95	7.15	7.25	8.15	8.40	8.55	.....	9.10
	Red Tubes	3.30	3.45	.....	4.15	4.20	4.35	4.65	.....	.....	5.50	5.85	5.95	6.10	6.20	6.50	7.20	.....	7.50	7.75	8.00	8.10	9.15	9.30	9.45	.....	10.05
CONVERSE	Rough Tread	.....	.....	.....	qs28.10	qs32.90	36.10	.....	.....	.....	43.05	44.40	45.95	47.60	48.80	50.15	qc52.45	qc54.05	55.95	58.60	63.00	64.80	72.00	74.85	77.35	.....	.....
	Smooth Tread	.....	qs21.20	.....	qs27.30	qs30.10	31.75	.....	.....	.....	36.75	38.10	39.50	40.90	42.10	43.45	qc47.25	qc48.70	50.25	51.85	53.25	54.70	61.65	63.65	65.25	.....	.....
	Gray Tubes	.....	3.30	3.90	4.10	4.20	4.35	5.15	.....	.....	5.35	5.50	5.65	5.80	6.55	6.75	6.85	6.95	7.10	7.25	7.50	8.50	8.80	9.70	9.10	10.40	10.60
	Red Tubes	.....	3.75	4.25	4.65	4.70	4.85	5.70	.....	.....	5.85	6.15	6.30	6.45	7.25	7.45	7.65	7.75	7.90	8.05	8.30	9.40	9 75	10 70	11 20	11 50	11 90
CORTLAND	C. C. Plain	.....	s14.10	.....	s18.35	.....	s21.45	s23.75	.....	.....	s28.15	28.70	30.05	30.70	s31.50	s32.30	s38.95	s40.05	41.30	43.25	43.95	s44.75	49.35	s50.85	52.25	s68.75	s70.85
	C. C. Non-Skid	.....	s14.85	.....	s19.20	.....	22.50	s24.90	.....	.....	s29.45	30.10	31.40	32.25	s32.90	s33.25	s40.95	s42.05	43.45	45.35	46.20	s45.80	51.85	s52.90	54.90	s71.50	s74.50
	Yankee Plain	.....	s19.65	.....	s24.10	.....	27.70	s29.90	.....	.....	s35.65	37.60	38.50	39.50	s40.50	s41.50	s46.50	s47.55	48.50	51.10	54.90	s57.42	65.15	s66.85	68.85	s81.45	s83.25
	Yankee Non-Skid	.....	s21.80	.....	s26.75	.....	30.75	s33.15	.....	.....	s39.60	41.75	42.80	43.85	s44.95	s46.00	s51.70	s52.80	53.90	56.75	61.00	s63.80	72.35	s74.25	76.50	s90.50	s92.50
CUPPLES	Rough Tread	.....	qs22.75	.....	qs29.75	.....	qc31.75	.....	.....	.....	qs37.50	qs39.75	qc41.50	c42.75	.....	.....	.....	qc49.00	qc51.25	qc52.00	c57.00	.....	c64.50	.....	cs67.00	.....	.....
	Plain Tread	.....	18.75	.....	24.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Gray Tubes	.....	3.15	.....	3.80	.....	4.00	.....	.....	.....	5.10	5.25	5.40	5.60	.....	.....	6.70	.....	6.90	7.05	7.20	.....	8.40	8.60	8.75	.....	.....
	Red Tubes	.....	3.95	.....	4.75	.....	4.95	.....	.....	.....	6.40	6.60	6.75	6.95	.....	.....	.....	8.40	8.65	8.80	8.95	.....	10.50	.....	10.95	.....	.....
	Rhinos Inner Tubes	8.00	8.90	.....	10.70	.....	11.30	.....	.....	.....	14.00	14.50	14.90	15.40	.....	.....	18.00	.....	18.50	18.90	19.40	.....	22.50	.....	22.90	.....	.....
CURTIS	Plain	18.20	18.50	.....	24.70	.....	27.60	.....	.....	.....	32.25	33.45	34.65	35.85	.....	38.10	.....	.....	44.15	45.50	46.75	48.00	54.30	55.80	57.30	.....	.....
	Suction	20.70	20.90	.....	27.25	.....	33.00	.....	.....	.....	39.75	41.15	42.35	43.90	.....	46.20	.....	.....	51.30	52.90	57.40	59.10	65.25	66.60	71.30	.....	.....
	Gray Tubes	3.35	3.45	.....	4.00	.....	4.15	.....	.....	.....	5.40	5.65	5.80	5.90	.....	6.15	.....	.....	7.35	7.55	7.75	8.00	9.00	9.30	9.40	.....	.....
	Red Tubes	3.65	3.85	.....	4.45	.....	4.55	.....	.....	.....	[6.05	6.20	6.45	6.55	.....	6.80	.....	.....	8.15	8.30	8.65	8.80	9.90	10.20	10.30	.....	.....
DAYTON	Plain	qs21.65	qs20.70	.....	qs25.20	qs27.95	29.65	.....	.....	s44.70	qs34.75	qc36.05	37.40	38.70	s39.85	41.10	s55.95	.....	47.70	49.15	50.50	51.85	s58.70	s60.40	61.90	s80.80	s92.85
	Non-Skid	qs26.30	qs24.75	.....	qs31.05	qs32.05	35.45	.....	.....	.....	qs42.90	qc44.30	45.65	47.25	s48.80	51.55	.....	.....	55.40	58.75	63.80	65.15	s72.60	s75.40	77.20	s96.10	s111.80
	Red Tubes	3.65	3.75	.....	4.80	4.95	5.15	.....	.....	5.95	6.10	6.20	6.40	6.65	6.75	6.90	7.80	.....	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
DEFIANCE	Plain	qs13.00	qs13.15	.....	17.45	s17.70	21.30	22.55	.....	.....	s26.95	27.70	28.55	29.15	29.95	31.10	.....	.....	39.05	41.50	42.00	43.25	.....	cs47.85	c49.65	.....	.....
	Tiger Tread	qs14.35	qs14.60	.....	19.20	s19.80	22.85	25.05	.....	.....	s29.05	31.08	31.55	32.85	33.28	33.70	.....	.....	42.25	45.70	47.25	48.45	.....	cs51.15	c54.45	.....	.....
	Gray Tubes	3.05	3.10	.....	3.65	3.75	3.90	4.35	.....	.....	4.90	5.05	5.25	5.40	5.70	5.75	.....	.....	6.65	6.80	7.05	7.25	.....	8.50	8.45	.....	.....
	Red Tubes	3.15	3.45	.....	3.90	3.95	4.00	4.50	.....	4.95	5.00	5.40	5.55	5.70	5.85	6.10	.....	.....	7.10	7.25	7.40	7.65	.....	8.20	8.30	.....	.....
	Double Wall Tubes	4.13	4.20	.....	4.97	5.11	5.32	5.88	.....	.....	6.65	6.86	7.14	7.35	7.77	7.70	.....	.....	9.03	9.24	9.59	9.85	.....	11.55	11.48	.....	.....
DELION	Plain	16.10	18.00	19.40	22.80	24.15	26.45	28.00	33.15	35.55	31.15	33.15	35.45	37.45	38.35	40.35	46.90	48.00	50.75	51.37	51.90	53.45	59.90	61.20	62.85	80.95	83.80
	Non-Skid	18.00	19.35	21.00	26.45	27.60	29.00	29.75	39.25	40.00	35.20	36.85	39.65	40.95	42.90	44.05	52.25	53.35	54.30	55.55	57.25	59.60	65.70	67.60	70.25	89.35	92.65
	Red Tubes	3.50	3.50	3.90	4.15	4.45	4.55	4.85	5.10	6.10	5.60	5.80	6.10	6.25	6.40	6.60	7.40	7.50	7.60	7.75	8.00	8.20	9.00	9.25	9.45	10.25	10.50
DIAMOND	Smooth	14.50	14.10	18.90	18.35	19.30	21.45	25.05	26.65	29.85	28.15	28.70	30.05	30.70	35.05	36.00	38.95	40.05	41.30	43.25	43.95	50.30	49.35	55.90	52.25	78.45	70.85
	Squeegee	15.20	14.85	19.80	19.20	20.30	22.50	26.25	27.90	31.25	29.45	30.10	31.40	32.25	36.85	37.80	40.95	42.05	43.45	45.35	46.20	52.85	51.85	58.65	54.90	82.30	74.40
	Gray Tubes	3.25	3.20	3.60	3.95	4.00	4.05	4.80	5.05	5.20	5.00	5.10	5.25	5.40	6.10	6.30	6.25	6.45	6.60	6.80	7.00	8.00	8.20	9.05	8.55	9.75	9.95
	Red Tubes	3.55	3.50	4.00	4.40	4.45	4.50	5.30	5.65	5.80	5.60	5.70	5.85	6.00	6.80	6.95	6.95	7.15	7.35	7.50	7.75	8.80	9.15	10.00	9.40	10.85	11.05
DOUBLE FABRIC	Ribbed Type Xtra-Ply	16.35	qs17.45	.....	qs22.65	qs24.40	c26.70	.....	.....	.....	qs32.90	qc35.50	c37.30	c38.10	.....	c40.55	.....	.....	c48.15	c49.90	c51.50	c53.95	c63.20	.....	c66.85	.....	.....
	Duo Cord Ribbed Non-Skid	.....	qs21.45	.....	qs27.95	.....	c32.10	.....	.....	.....	.....	qc43.35	c44.70	c46.05	.....	.....	c54.35	c56.05	c57.85	59.50	.....	.....	c71.75	.....	c75.80	.....	.....
	Brazil Gray Tubes	3.15	3.35	.....	3.80	3.85	4.05	4.15	4.35	.....	5.15	5.35	5.45	5.55	5.80	5.90	6.85	6.95	7.05	7.15	7.25	7.35	8.55	8.65	8.85	9.35	.....
DREADNAUGHT	Vacuum Red	.....	qs18.85	.....	qs23.70	qs24.90	c28.50	.....	.....	.....	qs34.70	c35.30	c37.10	c37.90	.....	cs39.95	.....	qc48.55	c49.20	c51.45	c52.25	cs54.65	c60.05	cs61.25	c63.50	.....	.....
	Ribbed Tread	.....	qs16.75	.....	qs21.70	qs22.95	c25.15	.....	.....	.....	qs30.20	c31.35	c32.55	c32.95	.....	cs36.20	.....	qc42.65	c43.85	c45.80	c46.55	cs48.95	c51.25	cs52.00	c54.30	.....	.....
	Super-Dreadnaught Red Tubes	.....	3.40	.....	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.45	.....	7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	10.45	10.80
DRY CLIMATE	Plain	.....	14.35	.....	18.25	19.60	21.35	24.20	.....	.....	28.45	29.05	30.45	31.20	32.60	33.10	38.85	40.05	41.35	43.30	43.95	45.80	50.75	51.55	53.80	.....	.....
	Non-Skid	.....	16.80	.....	21.35	23.00	24.95	28.35	.....	.....	33.30	34.00	35.70	36.45	38.10	38.70	45.45	46.90	48.40	50.60	51.35	53.65	59.40	60.30	62.95	.....	.....
	Red Tubes	.....	3.95	4.10	4.50	4.60	4.95	5.35	5.60	5.75	6.40	6.60	6.75	6.95	7.05	7.20	8.40	8.50	8.65	8.80	8.95	9.25	10.50	10.75	10.95	.....	.....
	Gray Tubes	.....	3.05	3.15	3.45	3.65	3.80	4.45	4.50	4.55	4.90	5.05	5.25	5.35	5.45	5.55	6.50	6.60	6.65	6.75	6.90	7.10	8.10	8.25	8.40	.....	.....
DUNLOP	Cross Groove	.....	26.40	.....	30.80	32.00	34.20	36.75	40.75	.....	40.90	44.65	46.95	49.15	51.50	54.35	55.45	57.00	57.65	61.15	61.80	64.00	68.20	71.15	73.90	83.15	103.70
	Traction Non-Skid	.....	29.15	.....	35.20	37.60	38.95	41.80	45.80	.....	49.05	50.90	56.20	58.85	61.25	63.15	63.80	66.00	68.20	70.40	72.70	75.00	84.25	88.00	89.40	97.90	97.90
	Tubes	4.80	4.85	.....	6.15	6.25	6.40	7.20	7.50	.....	7.70	8.00	8.25	8.55	9.05	9.05	10.45	10.45	10.70	10.95	11.20	11.50	12.90	13.35	13.35	14.75	15.15
DURAL	Red Tubes	3.65	3.75	4.20	4.55	4.70	4.85	5.10	5.45	6.15	5.95	6.15	6.30	6.45	6.95	7.10	8.40	7.85	8.05	8.25	8.45	8.65	9.50	9.75	9.90	11.50	11.90
	Gray Tubes	3.25	3.30	3.65	3.80	3.95	4.10	4.30	4.75	5.35	5.00	5.30	5.50	5.70	5.95	6.15	7.25	6.95	7.20	7.35	7.55	7.85	8.45	8.70	8.95	10.00	10.30
EHMAN	Track Tread	14.45	14.10	.....	18.25	19.30	21.40	24.95	.....	.....	28.00	28.60	29.85	30.65	35.00	35.90	.....	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	.....	.....
	Non-Skid Worm Drive Tread	14.45	14.10	.....	18.25	19.30	21.40	24.95	.....	.....	28.00	28.60	29.85	30.65	35.00	35.90	.....	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	.....	.....
	Gray Tubes	3.10	3.05	.....	3.75	3.80	3.85	4.55	.....	.....	4.75	4.85	5.00	5.15	5.80	6.00	.....	6.15	6.25	6.45	6.65	7.60	7.80	8.60	8.10	.....	.....
	Red Tubes	3.40	3.35	.....	4.20	4.25	4.30	5.05	.....	.....	5.30	5.40	5.55	5.70	6.45	6.60	.....	6.80	7.00	7.15	7.35	8.35	8.70	9.50	8.95	.....	.....
	Gray Universal Tube	.....	3.45	.....	3.45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Red Universal Tube	.....	3.80	.....	3.80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
EMPIRE	Smooth Gray	.....	qs16.10	.....	20.40	.....	23.55	26.25	27.55	.....	.....	32.05	33.45	34.00	.....	.....	.....	.....	46.55	48.50	.....	.....	.....	.....	.....	.....	.....
	Non-Skid Gray	qs16.00	qs16.80	.....	21.35	qs22.40	24.95	28.30	29.50	.....	33.10	33.70	35.20	35.80	37.30	37.55	45.75	46.90	48.40	50.60	51.35	53.65	59.40	60.30	62.95	.....	.....
	Gray Tubes	3.00	3.15	3.60	3.60	3.70	3.75	3.90	4.10	4.80	4.90	5.05	5.15	5.30	5.45	5.60	6.45	6.60	6.65	6.75	6.85	7.05	8.10	8.20	8.40	.....	.....
	Cord	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	qc51.40	.....	qc54.20	.....	.....	qc57.90	qc59.40	qc60.95	qc62.40	qc63.95	.....	qc75.80	.....	qc79.45	.....	.....
	Non-Skid Red	qs17.75	qs19.65	.....	23.70	qs24.90	27.70	31.45	32.75	.....	36.75	34.45	39.10	39.75	41.45	41.70	58.05	52.10	53.75	56.20	57.05	59.60	66.00	67.00	69.90	.....	.....
	Red Tubes	3.45	3.65	3.85	4.05	4.20	4.20	4.65	5.15	5.35	5.55	5.65	5.90	6.05	6.20	6.40	7.65	7.80	7.90	8.15	8.35	8.50	9.50	10.00	10.10	10.95	11.10
ENDURANCE	Ball Bearing Non-Skid	.....	qs18.50	.....	qs23.75	.....	qc27.50	.....	.....	.....	s36.25	qc37.00	c38.75	c40.00	.....	.....	.....	.....	qc51.50	qc53.00	qc55.50	c56.25	.....	c63.50	cs65.25	c67.25	.....
	Gray Tubes	3.45	3.60	3.85	4.05	4.20	4.25	4.60	4.80	5.50	5.50	5.60	5.70	5.95	6.15	6.15	7.30	7.30	7.35	7.55	7.70	7.85	9.10	9.30	9.30	10.50	10.65
	Red Tubes	3.85	3.90	4.35	4.90	5.00	5.10	5.75	6.00	6.15	6.15	6.40	6.60	6.80	7.25	7.25	8.35	8.35	8.55	8.75	8.95	9.20	10.30	10.65	10.65	11.75	12.10
FALLS	Ribbed	.....	23.60	.....	30.70	.....	33.00	.....	.....	.....	42.60	45.70	47.25	49.00	.....	.....	.....	.....	59.10	60.20	62.50	.....	.....	.....	.....	.....	.....
	"Neverslip" Non-Skid	.....	25.30	.....	32.80	34.40	35.30	.....	.....	.....	45.40	48.90	50.25	51.85	.....	54.85	58.30	60.50	62.50	63.80	64.70	68.00	79.65	81.30	82.90	98.50	99.50
	Pure Gum Green Tubes	4.80	5.00	.....	6.80	7.05	7 20	.....	.....	.....	8 95	9 20	9 45	9 70	9.90	10.20	11.25	11.50	11.85	12.15	12.45	12.75	13.95	14.30	14.55	16.40	17.10
FEDERAL	Plain	qs14.30	qs13.90	.....	qs18.05	qs19.10	s21 10	qc24 70	.....	.....	qs27.65	qc28 20	c29 60	c30 20	qc34.45	c32.20	.....	qc39.40	c40.65	c42.50	c43.20	c44.95	c48.50	.....	c51.45	.....	.....
	Traffik Tread	qs14.95	qs14.60	.....	qs18.90	qs20.00	s22 15	qc25 85	.....	.....	qs29 00	qc29 65	c30 90	c31 70	qc36.20	c33.80	.....	qc41.30	qc42.80	qc44.65	qc45.40	qc47.20	qc50.95	.....	c53.95	.....	.....
	Rugged Tread	qs16.85	qs16.40	.....	qs21.30	.....	s24.90	qc29.05	.....	.....	qs32.60	qc33.35	c34.75	c35.70	qc40.70	c38.00	.....	qc46.50	c48.15	c50.20	c51.05	c53.15	c57.30	.....	c60.70	.....	.....
	Cord Non-Skid	.....	.....	.....	.....	.....	qc42.45	.....	.....	.....	.....	qc53.95	.....	qc56.90	.....	.....	.....	.....	qc64.00	qc65.50	qc67.15	.....	qc79.60	.....	qc83.40	.....	.....
	Gray Tubes	3.10	3.05	.....	3.75	3.80	3.95	4.70	.....	.....	4.85	5.05	5.05	5.30	5.65	5.65	.....	6.35	6.55	6.55	6.80	7.05	8.00	8.30	8.30	.....	.....
	Red Skin Tubes	3.70	3.45	.....	4.35	4.40	4.55	5.45	.....	.....	5.55	5.80	5.80	6.10	6.55	6.55	.....	7.25	7.50	7.50	7.85	8.10	9.20	9.50	9.50	.....	.....
FIRESTONE	Round Tread	13.50	14.00	18.25	17.90	19.55	21.10	23.80	30.00	31.90	27.85	28.35	30.00	30.45	31.65	37.90	39.80	40.85	41.75	43.25	43.95	53.75	50.90	51.75	53.65	83.20	89.25
	Non-Skid	15.15	15.70	20.75	19.95	21.35	23.60	26.95	34.20	37.50	31 50	32 05	33 90	34.50	36.30	43.40	44.55	46.35	46.75	48.60	49.15	60.00	59.95	61.05	63.10	95.30	101.35
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.50	4.90	4.70	4.85	5.05	5.15	5.45	5.65	6.30	6.40	6.50	6.70	6.95	7.30	7.95	8.15	8.25	9.20	9.45
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.20	5.60	5.50	5.65	5.90	6.15	6.30	6.60	7.00	7.15	7.30	7.45	7.70	8.30	8.65	8.85	9.00	10.45	10.80
	Triple Tread	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	c47.85	c49.10	c50.45	.....	.....	c53.90	c55.30	c56.75	c58.15	c59.50	.....	c70.60	.....	c73.90	.....	.....
	F F Tread	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	c51.40	52.75	c54.20	.....	.....	c57.85	c59.40	c60.95	c62.40	c63.95	.....	c75.80	.....	c79.45	.....	.....
	Super Size Red Tubes	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.15	7.30	7.45	.....	.....	8.30	8.45	8.65	8.85	9.00	.....	10.25	.....	10.80	.....	.....
FISK	Plain	qs13.80	qs13.40	qs17.90	17.45	qs18.35	20.40	23.80	s26.10	s32.30	s26.75	27.20	28.55	29.15	33.30	37.60	.....	qc38.05	39.30	41.10	41.75	c50.15	c46.90	53.10	49.65	cs74.50	.....
	Gray and Black Non-Skid	qs14.50	qs14.10	.....	18.30	qs19.30	21.40	25.00	.....	s33.95	s28.00	28.60	29.85	30.65	35.00	39.45	qc38.50	qc39.95	41.30	43.10	43.90	c52.65	c49.20	55.70	52.10	cs78.20	cs70.65
	Red Non-Skid	.....	qs18.30	.....	22.90	qs24.15	26.75	.....	.....	.....	s33.60	34.30	35.80	36.80	.....	47.35	qc46.20	qc47.95	49.55	51.70	52.70	c63.30	c59.05	66.85	62.50	.....	cs84.80
	Ribbed Cord	.....	.....	.....	.....	.....	qc37.60	.....	.....	.....	.....	qc47.85	qc49.10	qc50.45	.....	.....	qc53.90	qc55.30	qc56.75	qc58.15	qc59.50	.....	qc70.60	.....	qc73.90	.....	.....
	Non-Skid Cord	.....	.....	.....	.....	.....	qc39.50	.....	.....	.....	.....	qc50.25	qc51.60	qc53.00	.....	.....	qc56.65	qc58.10	qc59.60	qc61.05	qc62.50	.....	qc74.15	.....	qc77.60	.....	.....
	Gray Tubes	3.10	3.05	3.40	3.75	3.80	3.85	4.55	4.80	4.75	4.75	4.95	4.95	5.15	5.50	5.50	6.15	6.15	6.40	6.40	6.65	6.90	7.80	8.10	8.10	9.25	9.45
	Red Tubes	.....	3.45	.....	4.30	.....	4.40	5.20	.....	5.45	5.45	5.70	5.70	5.95	6.35	6.35	7.10	7.10	7.30	7.30	7.65	7.90	8.95	9.30	9.30	.....	10.90

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
G & J	Plain	13.25	13.80	.....	17.95	18.85	20.80	27.15	.....	.....	27.45	28.00	29.30	30.05	36.20	31.90	.....	.....	40.45	42.25	42.90	44.65	48.20	56.25	51.10	.....	.....
	Non-Skid	15.25	14.50	.....	18.80	19.80	21.85	28.45	.....	.....	28.80	29.35	30.80	31.50	38.00	33.50	.....	.....	42.45	44.35	45.05	46.85	50.60	59.05	53.70	.....	.....
	Stalwart Tread	.....	16.40	.....	21.35	22.45	24.55	.....	.....	.....	33.50	34.10	35.90	36.65	.....	38.95	.....	47.15	48.75	50.95	51.70	53.85	57.85	.....	61.25	.....	.....
	Cord	.....	.....	.....	.....	.....	39.45	.....	.....	.....	.....	50.15	51.40	52.85	.....	55.80	56.30	57.95	59.60	61.00	62.40	63.95	73.95	75.65	77.40	.....	83.50
	Gray Tubes	2.85	3.00	.....	3.75	3.85	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	6.15	6.40	6.45	6.60	6.85	7.10	8.00	8.15	8.30	.....	9.40
	Red Tubes	3.65	3.75	.....	4.65	4.80	4.90	5.35	.....	.....	6.00	6.05	6.15	6.25	6.55	6.65	7.90	8.00	8.10	8.25	8.40	8.50	9.65	9.90	10.10	.....	11.25
GENERAL	Plain	.....	16.90	.....	21.05	.....	26.20	29.75	.....	.....	34.20	34.70	36.80	37.45	38.85	39.40	.....	.....	46.10	48.30	50.25	53.45	59.40	61.00	61.40	.....	.....
	Non-Skid	18.35	19.55	.....	24.75	26.70	29.45	33.65	.....	.....	38.65	39.40	41.65	42.40	44.60	45.30	.....	52.20	53.65	56.45	57.25	59.70	66.70	69.45	70.40	.....	.....
	Gray Tubes	3.00	3.05	3.55	3.70	3.90	4.20	4.45	.....	.....	5.25	5.45	5.60	5.75	6.00	6.30	.....	7.25	7.30	7.50	7.85	8.20	8.85	9.10	9.25	.....	10.60
	Red Tubes	3.55	3.60	.....	4.50	4.65	4.80	5.15	.....	.....	6.15	6.30	6.70	6.85	7.00	7.45	.....	8.00	8.20	8.40	8.70	9.45	9.55	9.70	9.95	.....	12.15
	Rib Tread	.....	.....	.....	.....	.....	qc37.60	.....	.....	.....	.....	qc47.85	qc49.10	qc50.45	.....	.....	.....	.....	qc55.30	qc56.75	qc58.15	c59.50	.....	c70.60	.....	c73.90	.....	.....
	Non-Skid	.....	.....	.....	.....	.....	qc40.45	.....	.....	.....	.....	qc51.40	qc52.75	qc54.20	.....	.....	.....	qc59.40	qc60.95	qc62.40	c63.95	.....	c75.80	.....	c79.45	.....	.....
GILLETTE SAFETY	Plain	14.90	13.85	.....	17.95	.....	21.10	.....	.....	.....	28.20	28.70	30.05	30.50	.....	32.25	.....	.....	41.40	43.30	43.95	.....	50.70	56.25	52.35	.....	.....
	Ribbed	.....	15.60	.....	21.35	.....	24.10	.....	.....	.....	31.50	32.05	33.90	34.50	.....	36.90	.....	.....	46.80	48.65	49.20	.....	57.85	57.85	61.05	.....	.....
	5,000-Mile Non-Skid	18.35	19.50	.....	24.75	.....	29.45	.....	.....	.....	38.65	39.40	41.65	42.40	.....	45.30	.....	.....	56.20	59.15	60.00	.....	71.25	72.75	73.75	.....	.....
	Plain Cord	.....	.....	.....	35.20	.....	37.60	.....	.....	.....	46.20	47.85	49.10	50.45	.....	.....	53.90	55.30	56.75	58.15	59.50	.....	70.60	.....	73.90	.....	.....
	Non-Skid Cord	.....	.....	.....	39.65	.....	42.35	.....	.....	.....	52.05	53.85	55.30	56.75	.....	.....	60.65	62.20	63.85	65.40	67.00	.....	79.40	.....	83.20	.....	.....
	Gray Tubes	2.75	3.00	.....	3.75	.....	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	.....	.....	6.45	6.60	6.85	.....	8.00	8.15	8.30	.....	.....
	Hard Service Red Tubes	.....	3.70	.....	4.65	.....	4.90	5.35	.....	.....	6.00	6.05	6.15	6.30	6.55	6.55	.....	.....	8.10	8.25	8.40	.....	9.65	9.90	10.00	.....	M
GLOBE	Plain	19.90	s19.55	24.65	25.45	s28.15	28.95	31.50	.....	36.40	34.50	34.90	36.60	38.35	38.75	39.60	43.75	qc45.60	47.25	48.70	50.10	51.50	57.80	59.70	61.10	79.50	81.10
	Good Grip Non-Skid	22.35	s22.25	27.35	28.15	s30.75	32.45	36.25	.....	40.10	38.10	38.75	40.45	41.20	42.90	43.25	47.50	qc50.80	53.05	56.15	59.55	61.60	66.50	67.85	72.60	90.65	97.25
	Red Tubes	3.50	3.65	3.95	4.25	4.45	4.50	4.75	.....	5.85	5.95	6.15	6.35	6.50	6.60	6.85	7.75	7.85	8.00	8.10	8.35	8.50	9.50	9.80	9.90	11.00	11.20
	Gray Tubes	3.05	3.25	3.50	3.85	3.95	4.00	4.20	.....	5.15	5.30	5.40	5.65	5.75	5.90	6.05	6.90	6.95	7.10	7.20	7.40	7.50	8.50	8.65	8.80	9.80	10.00
GOODRICH	Plain	13.80	13.40	17.95	17.45	18.35	20.40	23.80	25.30	28.35	26.75	27.25	28.55	29.15	33.30	34.20	37.00	38.05	39.25	41.10	41.75	47.80	46.90	53.10	49.65	74.55	67.30
	Safety Tread	14.45	14.10	18.80	18.25	19.30	21.40	24.95	26.50	29.70	28.00	28.60	29.85	30.65	35.00	35.90	38.90	39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15	78.20	70.70
	Gray Tubes	3.10	3.05	3.40	3.75	3.80	3.85	4.55	4.80	4.95	4.75	4.85	5.00	5.15	5.80	6.00	5.95	6.15	6.25	6.45	6.65	7.60	7.80	8.60	8.10	9.25	9.45
	Brown Tubes	3.40	3.35	3.80	4.20	4.25	4.30	5.05	5.35	5.50	5.30	5.40	5.55	5.70	6.45	6.60	6.80	7.00	7.15	7.35	8.35	8.70	9.50	8.95	10.30	10.50
	S. S. Silvertown Ribbed Tread	.....	.....	.....	.....	.....	37.60	.....	.....	.....	.....	47.85	49.10	50.45	.....	.....	53.90	55.30	56.75	58.15	59.50	.....	70.60	.....	73.90	.....	89.65
	Q. D. Silvertown Ribbed Tread	.....	.....	.....	.....	.....	39.35	.....	.....	.....	.....	50.05	51.35	52.75	.....	55.35	56.40	57.80	59.35	60.80	62.25	63.70	73.80	75.50	77.30	.....	93.70
	S. S. Silvertown Safety Tread	.....	.....	.....	.....	.....	39.50	.....	.....	.....	.....	50.25	51.60	53.00	.....	.....	56.65	58.10	59.60	61.05	62.50	.....	74.15	.....	77.60	.....	94.15
	Q. D. Silvertown Safety Tread	.....	.....	.....	.....	.....	41.30	.....	.....	.....	.....	52.60	53.95	55.40	.....	.....	59.25	60.70	62.30	.....	65.35	.....	77.50	.....	81.15	.....	98.40
GOODYEAR	Plain	.....	qs14.35	.....	q18.25	qs19.60	21.35	qc24.20	.....	.....	q28.45	c29.05	30.45	31.20	qc32.60	c33.10	qc38.85	qc40.05	41.35	c43.30	43.95	c45.80	c50.75	c51.55	c53.80	.....	.....
	All-Weather	.....	qs16.80	.....	q21.35	qs23.00	24.95	qc28.35	.....	.....	q33.30	c34.00	35.70	36.45	qc38.10	c38.70	qc45.45	qc46.90	48.40	c50.60	51.35	c53.65	59.40	c60.30	c62.95	.....	.....
	Ribbed Tread Cord	.....	.....	.....	qc35.20	.....	qc37.60	qs40.05	.....	.....	qc46.20	qc47.85	qc49.10	qc50.45	.....	.....	qc53.90	qc55.30	c56.75	qc58.15	c59.50	.....	c70.60	.....	c73.90	.....	c89.65
	All-Weather Cord	.....	.....	.....	qc37.85	.....	qc40.45	qc43.05	.....	.....	qc49.65	qc51.40	qc52.75	qc54.20	.....	.....	qc57.90	qc59.40	c60.95	qc62.40	c63.95	.....	c75.80	.....	c79.45	.....	c96.30
	Unusual Sizes—Plain Tread	.....	.....	.....	.....	.....	.....	cs29.30	.....	.....	.....	qs34.90	.....	.....	cs 39.15	qs39.75	.....	.....	.....	.....	.....	.....	.....	.....	qs64.55	qs83.10	.....
	All-Weather	.....	.....	.....	.....	.....	.....	cs34.30	.....	.....	.....	qs40.85	.....	.....	cs 45.80	qs46.50	.....	.....	.....	.....	.....	.....	.....	.....	qs75.50	qc97.25	.....
	Regular Tubes	.....	3.05	.....	3.45	3.65	3.80	4.10	.....	.....	4.90	5.05	5.25	5.35	5.45	5.55	6.50	6.60	6.65	6.75	6.90	7.10	8.10	8.25	8.40	.....	.....
	Heavy Tourist Tubes	.....	3.95	.....	4.50	.....	4.95	5.35	.....	.....	6.40	6.60	6.75	6.95	.....	7.20	8.40	.....	8.65	8.80	8.95	9.25	10.50	10.75	10.95	11.70	11.90
GORDON	Lotraction Tread	.....	s20.90	.....	s23.80	.....	qc27.90	.....	.....	.....	s33.60	qc36.05	qc37.00	qc38.05	.....	.....	.....	.....	qc47.95	qc49.95	qc51.95	.....	s62.25	.....	s65.65	.....	.....
	Triangle Tread	qs18.30	qs21.40	.....	qs25.00	qs26.40	qc29.15	.....	.....	.....	qs35.50	c38.00	c39.00	c40.25	c41.50	c42.75	.....	c50.10	c51.95	c52.85	c53.90	c56.30	c65.25	c67.25	c66.95	.....	.....
	Gray Tubes	3.40	3.55	.....	4.05	4.30	4.45	4.80	.....	.....	5.75	5.95	6.10	6.25	6.35	6.50	.....	7.70	7.80	7.90	8.05	8.35	9.45	9.70	9.85	.....	.....
	Red Tubes	3.85	3.95	.....	4.50	4.75	4.95	5.35	.....	.....	6.40	6.60	6.75	6.95	7.05	7.20	.....	8.50	8.65	8.80	8.95	9.25	10.50	10 75	10.95	.....	.....
GRYPHON	Non-Skid	15.60	15.00	.....	19.25	20.70	22.85	27.10	.....	31.70	29.95	30.65	31.90	32.80	37.10	34.75	.....	42.45	44.10	45.75	46.65	48.35	52.55	59.40	55.60	.....	.....
	Red Tubes	3.70	3.55	4.00	4.40	4.45	4.55	4.90	5.20	5.60	5.80	5.90	6.15	6.40	6.55	6.65	7.45	7.50	7.65	7.75	7.90	8.15	9.35	9.65	9.45	.....	.....
	Gray Tubes	3.25	3.20	3.70	3.75	4.05	4.15	4.80	4.95	5.20	5.00	5.10	5.25	5.45	6.00	5.70	6.85	6.60	6.75	6.90	7.05	7.35	8.40	8.95	8.60	.....	.....
HAMILTON	Cable Tread	14.80	15.85	.....	20.50	21.60	qc23.55	qc26.60	28.20	29.80	31.50	qc32.10	qc33.70	qc34.35	qc36.10	qc36.70	38.30	43.80	qc45.75	qc47.80	qc48.50	qc50.55	qc58.15	qc59.00	qc61.30	.....	77.90
	Non-Skid	16.20	17.25	.....	22.00	23.00	qc24.95	qc28.00	29.65	31.55	33.25	qc33.80	qc35.45	qc36.10	qc37.85	qc38.45	.....	46.35	qc48.30	qc50.30	qc51.00	qc53.05	qc61.65	qc62.50	qc64.80	.....	82.20
	Invincible and Perfection Pink Tubes	3.55	3.65	3.80	4.35	4.40	4.55	4.80	5.00	5.60	5.70	5.80	5.90	6.15	6.30	6.45	7.10	7.20	7.30	7.45	7.70	7.85	8.65	8.85	9.00	9.75	10.80
	Gray Tubes	2.90	3.00	3.20	3.50	3.60	3.75	3.95	4.35	4.70	4.75	4.85	5.05	5.20	5.35	5.45	6.30	6.40	6.50	6.70	6.95	7.10	7.70	7.90	8.15	8.95	9.45
HANES	Plain	14.45	15.00	.....	18.85	20.50	22.10	24.80	.....	.....	27.80	28.30	29.95	30.40	31.60	32.15	.....	.....	41.70	43.20	43.90	45.70	50.85	51.75	53.65	.....	.....
	Non-Skid	16.10	16.65	.....	20.95	22.35	24.60	27.95	.....	.....	31.50	32.05	33.90	34.50	36.30	36.90	.....	.....	46.75	48.60	49.20	51.05	59.95	61.05	63.10	.....	.....
	Tubes	3.10	3.20	.....	3.80	3.95	4.10	4.30	.....	.....	5.05	5.30	5.55	5.70	5.85	6.00	.....	.....	7.15	7.35	7.60	7.80	8.45	8.65	8.95	.....	.....
HARDMAN SENIOR	Plain	.....	s20.75	s24.00	s25.20	s27.90	29.70	34.00	.....	.....	s36.00	37.10	39.10	40.40	41.85	43.90	s47.75	49.40	51.35	53.25	55.25	57.75	613.0	s65.25	67.00	s86.35	s89.50
	Non-Skid	25.00	s23.50	s27.00	s28.00	s31.00	33.10	37.25	.....	.....	s40.00	41.15	43.50	44.90	47.15	48.85	s54.15	56.05	58.20	60.35	62.50	64.25	71.70	s74.80	76.00	s95.50	s99.50
	Red Tubes	.....	3.95	4.35	5.00	5.10	5.25	5.85	.....	.....	6.30	6.50	6.75	6.95	7.30	7.40	8.40	8.50	8.70	8.90	9.20	9.35	10.45	10.75	10.90	12.50	12.75
HARDMAN JUNIOR	Plain	.....	s15.50	s19.50	s20.35	s21.50	22.85	26.00	.....	.....	s27.75	29.50	31.40	32.45	34.90	36.50	s42.35	43.45	45.10	46.20	48.25	50.00	54.20	s56.00	58.00	.....	.....
	Non-Skid	18.00	s16.75	s22.00	s21.50	s22.50	24.15	29.40	.....	.....	s29.00	30.25	32.45	34.00	36.00	38.00	s44.00	45.00	46.75	47.85	49.50	51.60	56.00	s58.00	60.00	.....	.....
	Gray Tubes	.....	3.75	.....	4.30	4.40	4.50	4.85	.....	.....	5.75	5.85	6.00	6.20	6.40	6.45	7.55	7.60	7.70	7.85	8.05	8.20	9.35	9.50	9.60	.....	.....
HARTFORD	Plain	13.25	13.80	.....	17.95	18.85	20.80	27.15	.....	.....	27.45	28.00	29.30	30.05	36.20	31.90	.....	.....	40.45	42.25	42.90	44.65	48.20	56.25	51.10	.....	.....
	Hartford Anti-Skid	15.25	14.50	.....	18.80	19.89	21.85	28.45	.....	.....	28.85	29.35	30.80	31.50	38.00	33.50	.....	.....	42.45	44.35	45.05	46.85	50.60	59.05	53.70	.....	.....
	Strongheart Tread	.....	16.40	.....	21.35	22.45	24.55	.....	.....	.....	33.50	34.10	35.90	36.65	.....	38.95	.....	47.15	48.75	50.95	51.70	53 85	57.85	.....	61.25	.....	.....
	Hartford Cord	.....	.....	.....	.....	.....	39.45	.....	.....	.....	.....	50.15	51.40	52.85	.....	55.80	56.30	57.95	59.60	61.00	62.40	63.95	73.95	75.65	77.40	.....	83.50
	Gray Tubes	2.85	3.00	.....	3.75	3.85	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	6.15	6.40	6.45	6.60	6.85	7.10	8.00	8.15	8.30	.....	9.40
	Red Tubes	3.65	3.75	.....	4.65	4.80	4.90	5.35	.....	.....	6.00	6.05	6.15	6.25	6.55	6.65	7.90	8.00	8.10	8.25	8.40	8.50	9.65	9.90	10.10	.....	11.25
HAWKEYE	Santa Fe Plain	.....	14.47	.....	17.85	.....	21.12	.....	.....	.....	27.83	29.15	30.80	31.30	.....	33.28	.....	40.70	41.53	43.34	44.06	45.93	50.38	51.32	53.13	.....	.....
	Santa Fe Non-Skid	.....	.....	.....	19.97	.....	23.60	.....	.....	.....	31.52	32.12	33.83	34.54	.....	36.69	.....	44.39	45.49	47.41	47.91	49.72	55.88	56.82	58.63	.....	.....
	Ribbed Tread and Non-Skid	19.47	20.96	.....	26.57	.....	30.75	.....	.....	.....	40.70	41.53	43.78	44.61	.....	46.59	.....	51.81	54.07	57.09	61.77	62.76	68.81	71.83	73.48	.....	.....
	[illegible] Red Tubes	3.25	3.35	.....	4.00	4.25	4.35	4.45	.....	.....	5.40	5.55	5.70	5.95	6.20	6.30	.....	7.10	7.25	7.30	7.60	7.80	8.60	8.80	8.90	.....	.....
	[illegible] Gray Tubes	2.80	2.90	.....	3.45	3.60	3.70	3.90	.....	.....	4.70	4.85	5.00	5.20	5.35	5.45	.....	6.35	6.40	6.50	6.05	6.85	7.70	7.85	8.05	.....	.....

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
HENDRIE	Plain	13.50	14.40	16.85	18.70	19.75	21.75	26.25	.....	30.00	28.70	29.25	31.25	32.05	32.90	33.45	39.60	40.45	41.75	42.35	43.75	46.15	51.50	53.00	54.50	68.95	71.25
	Non-Skid	15.75	16.90	19.80	21.55	22.60	25.50	28.75	.....	35.15	33.00	34.75	36.80	37.35	37.70	38.05	47.50	48.40	49.10	51.35	52.15	54.20	62.00	63.50	65.00	81.40	83.60
	California Non-Skid	22.05	23.15	24.40	27.80	28.35	31.90	33.60	.....	37.95	39.35	40.30	41.70	42.55	43.85	44.50	53.50	54.40	55.20	59.30	60.10	62.95	71.10	71.70	73.30	90.15	98.00
	Hendrie Gray Tube	2.70	2.85	3.10	3.50	3.60	3.75	3.90	.....	4.60	4.70	4.90	5.00	5.20	5.40	5.50	6.20	6.35	6.45	6.55	6.75	6.90	7.85	7.95	8.10	8.45	8.65
	California Red Tube	3.25	3.50	3.75	4.05	4.30	4.40	4.60	.....	5.40	5.50	5.65	5.95	6.10	6.25	6.50	7.20	7.45	7.50	7.70	7.80	8.05	9.15	9.30	9.40	9.90	10.00
HIGHWAY	Non-Skid	qs14.85	qs14.30	.....	qs18.35	.....	c21.75	.....	.....	.....	qs28.50	qc29.20	c30.40	c31.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Red Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	.....	.....	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	.....	.....	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
HOOD	Plain	20.30	20.80	22.35	27.50	29.45	30.95	33.10	.....	.....	36.20	36.85	37.55	38.50	39.60	40.65	53.00	53.80	55.95	57.40	58.50	59.85	68.85	70.20	71.35	91.50	92.50
	Non-Skid	24.30	24.85	27.00	31.50	34.15	35.45	37.95	.....	.....	43.75	44.65	45.85	46.75	48.95	51.45	61.05	61.95	62.60	63.90	64.50	65.75	76.30	77.40	79.00	96.50	100.65
	Ribbed Tread	24.00	24.55	.....	31.00	33.60	34.90	.....	.....	.....	42.90	43.75	44.95	45.80	.....	.....	60.05	60.95	61.69	62.90	63.50	.....	75.30	76.40	78.00	95.55	99.65
	Puritan Plain	qs.....	qs16.75	.....	qs19.00	qs20.35	21 45	c24.20	c.....	.....	qs28.90	c29.70	c30.45	c31.15	c32.30	c33.45	.....	c40.55	c41.75	c43.30	c44.00	c45.70	c51.15	cs52.95	c53.75	.....	.....
	Puritan Gripper Non-Skid	qs.....	qs18.95	.....	qs21.85	qs23.50	25.25	c28.85	c.....	.....	qs35.30	c35.75	c36.20	c36.85	c37.65	c39.05	.....	c47.80	c48.85	c50.50	c51.15	c52.65	c58.50	cs60.25	c61.45	.....	.....
	Hood Red and Gray Tubes	3.85	4.00	4.50	4.75	4.90	4.95	5.20	.....	5.80	5.90	6.00	6.10	6.25	6.40	6.55	7.65	7.80	7.95	8.10	8.35	8.60	9.45	9.60	9.75	11.20	11.75
	Puritan Red and Gray Tubes	3.40	3.45	.....	4.05	4.20	4.40	4.80	5.20	5.40	5.15	5.25	5.35	5.50	5.90	6.30	6.85	6.95	7.05	7.15	7.25	7.60	8.30	8.45	8.60	10.00	11.00
HOWE	Ribbed Tread	.....	qs20.85	.....	qs25.20	....	.	.....	.....	.....	qs37.35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Non-Skid	.....	.....	.....	.....	.....	qc32.90	.....	.....	.....	.....	qc42.35	qc43.45	c44.75	.....	qc49.20	c52.20	qc53.20	c55.50	c58.00	c60.75	.....	c69.00	c72.00	c73.55	.....	.....
	Gray Tubes	2.90	3.00	3.20	3.50	3.60	3.75	3.95	4.25	4.70	4.75	4.85	5.00	5.15	5.40	5.50	6.10	6.15	6.25	6.45	6.65	6.90	7.80	8.00	8.10	9.20	9.45
	Red Tubes	3.55	3.65	3.80	4.35	4.40	4.55	4.80	5.00	5.55	5.65	5.80	5.90	6.00	6.20	6.30	7.65	7.80	8.00	8.25	8.35	8.55	9.70	10.10	10.25	10.85	11.00
INDIANA	Plain	13.50	14.00	18.25	17.90	19.55	21.10	23.80	.....	.....	27.85	28.35	30.00	30.45	31.65	37.90	.....	40.85	41.75	43.25	43.95	53.75	59.90	51.75	53.65	.....	.....
	Button and Traction Non-Skid	15.15	15.70	20.75	19.95	21.35	23.60	26.95	.....	.....	31.50	32.05	33.90	34.50	36.30	43.40	.....	46.35	46.75	48.60	49.15	60.00	59.95	61.05	63.10	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	3.95	.....	.....	4.60	4.85	5.05	5.20	5.35	5.45	.....	6.40	6.50	6.70	6.95	7.10	7.70	7.90	8.15	.....	.....
	Brown Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.45	.....	7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	.....	.....
KELLY-SPRINGFIELD	Plain	qs21.90	qs20.95	.....	25.45	s28.20	29.90	32.50	s42.00	s44.95	s35.00	36.30	37.65	38.95	40.10	41.35	s56.20	s46.35	47.95	49.40	50.75	52.10	58.95	60.65	62.15	s81.05	s93.10
	Driving Tread	.....	.....	.....	.....	.....	.....	.....	.....	.....	qs42.50	c43.70	c44.95	c46.20	c48.65	c51.05	c62.60	c53.45	c55.45	c58.05	c63.95	c65.10	c72.20	c75.55	c76.95	.....	cs100.60
	Kant-Slip Tread	qs26.55	qs25.00	.....	qs31.30	qs32.30	35.70	c38.80	.....	.....	s43.15	c44.55	c45.90	c47.50	c49.05	c51.80	c62.85	c53.70	c55.65	c59.00	64.05	c65.40	c72.85	75.65	77.45	cs98.35	cs112.05
	Red Tubes	3.65	3.75	4.00	4.80	4.95	5.15	5.45	5.85	5.95	6.10	6.20	6.40	6.65	6.75	6.90	7.80	8.05	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25
KNIGHT	Blackstone Non-Skid	.....	15.85	.....	20.20	21.55	23.85	.....	.....	.....	31.85	32.40	34.25	34.85	.....	37.30	.....	42.15	42.50	44.20	44.70	.....	54.50	.....	57.35	.....	.....
	Knight Plain	.....	22.55	.....	27.95	30.05	30.80	33.45	.....	.....	37.20	38.45	.....	41.05	.....	43.25	.....	47.40	48.75	50.00	52.20	54.50	61.00	62.25	64.75	.....	.....
	Knight Non-Skid	.....	25.00	.....	31.30	32.30	35.70	38.80	.....	.....	43.15	44.55	45.90	47.50	.....	51.80	.....	53.70	55.65	59.00	64.05	65.40	72.85	75.65	77.45	96.35	112.05
	Blackstone Tubes	.....	3.10	.....	3.60	3.75	3.80	4.05	.....	.....	4.80	4.95	5.10	5.30	.....	5.55	.....	6.35	6.40	6.60	6.70	6.90	7.75	7.90	8.05	.....	.....
	Knight Red Tubes	.....	3.70	.....	4.60	4.65	4.80	.....	.....	.....	5.95	6.15	6.30	6.45	6.90	6.95	7.90	.....	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
KOKOMO	Plain	qs15.25	qs15.85	.....	qs20.60	.....	q23.80	.....	.....	.....	qs31.40	.....	c33.65	c34.35	.....	c36.70	.....	.....	c46.35	c48.40	c49.25	c51.25	.....	.....	c58.50	.....	.....
	Gridiron Non-Skid	qs16.00	qs16.65	.....	qs21.50	.....	q25.20	.....	.....	.....	qs33.10	.....	c35.25	c36.10	.....	c38.50	.....	.....	c48.75	c50.90	c51.60	c53.75	.....	.....	c61.50	.....	.....
	Standard Gray Tubes	2.90	3.05	3.25	3.60	3.80	3.85	4.05	4.25	.....	4.75	4.80	5.00	5.15	5.30	5.45	.....	.....	6.20	6.35	6.60	6.85	7.80	8.10	8.35	8.80	.....
	Standard Red Tubes	3.25	3.35	3.50	4.05	4.25	4.30	4.50	4.75	.....	5.30	5.40	5.50	5.65	5.95	6.10	.....	.....	7.00	7.10	7.35	7.60	8.65	8.80	9.00	9.70	.....
	Everlaster Gray Tubes	3.45	3.55	3.95	4.30	4.45	4.50	5.00	5.10	.....	5.60	5.65	5.85	6.05	6.20	6.45	.....	.....	7.35	7.55	7.80	8.05	9.15	9.30	9.50	10.85	.....
	Everlaster Red Tubes	3.75	3.90	4.45	4.80	4.95	5.05	5.25	5.65	.....	6.20	6.30	6.50	6.65	6.90	7.15	.....	.....	8.10	8.50	8.60	8.95	10.15	10.20	10.50	12.05	.....
LEE	Standard Plain	.....	15.70	19.75	19.20	20.35	22.50	28.10	31.75	34.65	29.50	30.45	31.50	32.60	35.55	35.90	42.75	42.05	43.40	45.45	46.10	48.95	53.25	54.10	56.35	80.00	80.70
	Standard Non-Skid	.....	16.60	21.70	21.50	22.40	24.75	31.90	34.90	37.10	32.45	33.50	34.65	35.85	39.35	39.70	47.05	46.25	47.75	50.00	50.70	53.85	58.55	59.50	61.95	88.00	88.75
	Puncture Proof Plain	.....	26.90	30.20	33.60	34.50	35.75	40.85	43.25	43.65	42.80	46.80	48.40	50.00	52.85	53.75	58.55	59.80	62.40	64.75	66.05	68.45	71.45	72.50	73.50	87.00	89.10
	Puncture Proof Non-Skid	.....	29.60	33.20	36.95	37.95	39.30	44.95	47.60	48.00	47.10	51.50	53.25	55.00	58.15	59.10	61.40	65.00	68.65	71.20	72.65	75.30	78.50	79.75	80.85	95.65	98.00
	Groove Tread Cord	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47.85	.....	50.45	.....	.....	.....	.....	56.75	58.15	59.50	.....	70.60	.....	73.90	.....	.....
	Zig Zag Tread Cord	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	51.40	.....	54.20	.....	.....	.....	.....	60.95	62.40	63.95	.....	75.80	.....	79.45	.....	.....
	Gray Tubes	3.10	3.05	3.40	3.75	4.00	4.10	4.55	4.80	4.95	5.00	5.10	8.25	5.40	5.80	6.00	6.50	6.15	6.25	6.45	6.65	6.90	7.80	7.95	8.10	9.25	9.45
	Red Tubes	3.40	3.35	3.80	4.20	4.35	4.45	5.05	5.35	5.50	5.45	5.55	5.70	5.90	6.45	6.50	7.20	6.80	7.00	7.15	7.35	7.65	8.70	8.85	8.95	10.30	10.50
LIBERTY	Plain	.....	15.95	.....	20.30	.....	23.70	.....	.....	.....	31.65	32.30	33.90	34.60	.....	.....	.....	.....	46.00	48.05	48.80	.....	.....	.....	59.80	.....	.....
	Non-Skid	.....	16.80	.....	21.35	.....	24.95	.....	.....	.....	33.30	34.00	35.70	36.45	.....	.....	.....	.....	48.40	50.60	51.35	.....	.....	.....	62.95	.....	.....
	Gray Tubes	.....	3.05	.....	3.45	.....	3.80	.....	.....	.....	4.90	5.05	5.25	5.35	.....	.....	.....	.....	6.65	6.75	6.90	.....	.....	.....	8.40	.....	.....
	Red Tubes	.....	3.40	.....	3.95	.....	4.20	.....	.....	.....	5.35	5.50	5.70	5.95	.....	.....	.....	.....	7.30	7.40	7.55	.....	.....	.....	9.10	.....	.....
McCREARY	Plain Tread	15.50	16.45	19.90	21.60	23.30	25.60	.....	.....	.....	33.65	34.50	35.50	36.95	.....	37.60	.....	46.50	48.30	50.60	51.20	53.45	58.65	.....	61.60	.....	.....
	Non-Skid	17.50	17.95	.....	23.60	25.45	27.95	.....	.....	.....	36.85	36.95	38.95	39.85	.....	43.25	.....	.....	51.10	53.75	54.55	56.85	64.75	.....	67.05	.....	.....
	Gray	3.05	3.10	3.55	3.70	3.90	4.05	4.30	.....	.....	5.00	5.25	5.45	5.60	.....	5.90	.....	6.90	7.00	7.20	7.55	7.70	8.30	.....	8.75	.....	.....
	Red	3.85	4.00	4.60	4.85	4.90	5.10	5.40	.....	.....	6.40	6.60	6.90	7.00	.....	7.50	.....	8.35	8.50	8.70	9.00	9.20	10.25	.....	10.55	.....	.....
McGRAW	Congress Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	.....	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	.....	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	Congress Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	.....	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	Imperial Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	qs27.70	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	qs40.70	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	Imperial Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	qs42.90	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	McGraw Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	qs27.70	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	qs40.70	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	McGraw Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	.....	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	Pullman Plain	qs13.90	qs13.65	qs18.15	17.90	qs18.60	20.80	24.15	qs27.70	qs29.00	qs27.15	27.95	29.15	29.70	33.70	31.75	qs40.70	.....	39.75	41.70	42.35	43.60	47.70	53.15	50.50	.....	.....
	Pullman Non-Skid	qs14.85	qs14.30	.....	18.35	qs19.70	21.75	25.80	.....	qs30.20	qs28.50	29.20	30.40	31.25	35.35	33.10	.....	qc40.45	42.00	43.55	44.45	46.05	50.05	56.55	52.95	.....	.....
	Red Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	7.10	7.15	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	6.50	6.30	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
McNAULL		.....	.....	.....	.....	.....	.....	.....	.....	.....	38.75	.....	42.69	.....	.....	.....	.....	54.71	.....	58.06	.....	.....	70.65	.....	74.44	.....	.....
MANSFIELD	Plain	14.25	13.95	17.20	18.70	20.35	21.40	23.40	.....	24.15	27.10	28.70	29.00	30.00	33.90	31.90	.....	.....	40.50	41.75	43.00	44.20	48.60	56.40	50.65	.....	.....
	Non-Skid	15.90	15.45	.....	21.15	22.35	23.75	26.25	.....	.....	30.15	31.10	32.15	33.35	37.65	35.50	.....	.....	45.00	46.25	47.50	48.75	55.00	.....	61.00	.....	.....
	Gray Tubes	2.70	2.75	3.20	3.40	3.50	3.70	4.30	.....	4.70	4.35	4.50	4.70	4.85	5.30	5.15	.....	.....	5.85	5.95	6.15	6.35	7.25	7.75	8.25	.....	.....
	Red Tubes	3.35	3.35	.....	3.95	4.15	4.30	4.95	.....	5.60	5.30	5.45	5.60	5.70	6.30	6.10	.....	.....	7.15	7.30	7.45	7.70	8.65	9.25	8.90	.....	.....

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
MARATHON	Runner Thread	.....	qs20.05	.....	qs24.40	qs25.45	28.45	c30.20	.....	.....	qs36.05	c37.25	c38.40	c39.60	c40.75	c41.95	qc51.85	.....	c55.15	c56.75	c58.40	c60.50	c67.90	c69.90	c71.95	cs85.00	cs85.27
	Angle Thread	qs15.45	qs20.55	.....	qs25.05	qs26.10	29.15	c31.00	.....	.....	qs37.00	c38.20	c39.40	c40.60	c41.80	c43.00	qc53.20	c54.90	c56.55	c58.20	c59.85	c61.55	c69.65	c71.70	c73.75	.....	cs89.45
	Heavy Red Tube	2.90	3.10	.....	4.05	4.15	4.30	4.60	.....	.....	5.60	5.80	6.00	6.20	6.40	6.60	7.35	7.60	7.80	8.05	8.30	8.55	10.30	10.60	10.90	13.05	13.40
	Gray Tube	2.60	2.80	.....	3.70	3.80	3.95	4.15	.....	.....	5.15	5.30	5.50	5.65	5.85	6.05	6.75	6.95	7.15	7.40	7.60	7.85	9.35	9.65	9.90	11.85	12.15
MARION	Plain	qs13.20	qs14.30	.....	qs18.05	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Ribbed	.....	qs15.25	.....	qs19.50	c20.00	c22.00	.....	.....	.....	qs28.60	.....	c30.80	c32.55	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Non-Skid	qs14.95	qs15.95	.....	qs20.40	.....	c23.90	.....	.....	.....	qs30.80	c31.50	c33.50	c34.25	c35.90	c36.50	.....	.....	c46.00	c47.30	c47.85	c49.50	c55.00	c56.65	c58.30	.....	.....
	Gray	2.90	3.00	.....	3.60	3.70	3.75	.....	.....	.....	4.75	5.00	5.20	5.30	5.45	5.55	.....	.....	6.40	6.60	6.75	7.10	8.10	8.20	8.25	.....	.....
	Red	.....	3.80	.....	4.50	4.75	4.85	.....	.....	.....	5.20	6.25	6.50	6.65	6.90	7.10	.....	.....	7.80	8.40	8.60	9.25	9.50	9.70	9.90	.....	.....
MASON	Plain Tread	14.10	14.90	.....	19.00	20.40	22.15	.....	.....	.....	29.10	29.60	31.35	31.85	.....	33.65	.....	40.85	41.75	43.25	43.95	45.70	50.90	51.75	53.65	.....	.....
	Ribbed Tread	14.85	15.95	.....	20.35	21.95	23.95	27.25	.....	.....	30.20	30.70	32.60	33.10	34.95	35.35	42.70	44.50	45.05	46.80	47.45	49.25	56.10	57.95	59.95	.....	.....
	Non-Skid	15.40	16.50	.....	21.20	22.65	24.80	28.05	.....	.....	31.50	32.05	33.90	34.50	36.30	36.90	44.55	46.35	46.75	48.60	49.15	51.05	59.95	61.05	63.10	.....	.....
	Gray Tubes	3.15	3.20	.....	3.80	3.95	4.15	4.35	.....	.....	5.05	5.35	5.55	5.70	5.90	6.00	6.90	7.05	7.15	7.35	7.65	7.80	8.50	8.70	8.95	.....	.....
	Red Tubes	3.65	3.75	.....	4.55	4.70	4.85	5.10	.....	.....	6.05	6.20	6.50	6.75	6.95	7.10	7.75	7.85	8.05	8.20	8.45	8.65	9.50	9.75	9.90	.....	.....
MICHELIN	Plain Tread	qs14.95	qs15.60	.....	qs21.50	qs22.60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Universal Tread	.....	.....	.....	s22.50	.....	c25.40	c27.10	.....	.....	s31.50	c35.15	c35.40	c36.65	cs38.25	c39.80	qc44.75	46.50	c47.60	c50.10	c51.15	cs52.95	c58.40	cs59.80	c60.50	.....	.....
	Tubes	3.55	3.70	.....	4.25	3.70	4.40	4.80	.....	5.55	5.10	5.80	5.30	6.20	5.60	6.65	7.60	6.80	8.00	7.20	8.45	7.70	9.70	10.10	10.25	11.30	11.30
MOHAWK	Plain	qs18.70	qs19.65	.....	24.00	qs26.55	28.05	c30.65	.....	.....	qs35.35	c36.50	37.55	38.90	c40.20	42.45	.....	c45.70	47.85	49.85	52.60	c53.80	c59.65	s62.00	c63.45	cs78.95	.....
	Non-Skid	qs22.55	qs23.70	.....	30.00	qs31.10	34.45	c37.55	.....	.....	qs41.60	43.10	44.20	45.90	c47.45	50.15	52.90	c54.05	56.45	58.90	61.85	c63.35	c70.35	s73.35	75.00	cs93.10	cs96.65
	Ribbed Tread	.....	qs21.10	.....	qs25.95	.....	qc30.35	.....	.....	.....	qs38.45	qc39.65	qc40.85	c42.05	.....	.....	48.10	.....	c51.65	qc53.85	c56.95	.....	c64.90	.....	c68.45	.....	.....
	Pure Gum and Red Tubes	3.40	3.55	.....	4.55	4.70	4.90	5.20	.....	.....	5.75	5.85	6.10	6.25	6.35	6.55	7.35	7.65	7.85	8.00	8.25	8.60	9.35	9.65	9.95	11.40	11.60
	Combination Tube	.....	3.80	.....	3.80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Keaton	.....	.....	.....	qs31.55	.....	qc36.35	.....	.....	.....	qs43.85	qc45.40	qc46.60	qc48.35	.....	.....	qc55.55	.....	c60.00	qc61.10	c64.45	.....	c74.45	.....	c78.05	.....	.....
MONARCH	Gray Tubes	3.15	3.35	.....	4.15	4.20	4.25	.....	.....	.....	5.25	5.35	5.50	5.65	.....	6.10	.....	6.80	6.90	7.15	7.35	7.60	8.60	8.70	8.95	.....	.....
	Red Tubes	3.45	3.70	.....	4.65	4.70	4.75	.....	.....	.....	5.85	5.95	6.10	6.30	.....	6.75	.....	7.50	7.75	7.90	8.10	8.45	9.60	9.75	9.85	.....	.....
NABOB	Plain Tread	qs19.95	qs20.95	.....	s25.45	qs28.20	29.90	32.50	.....	.....	q35.00	c36.30	c37.65	c38.95	c40.10	c41.35	.....	c46.35	c47.95	c49.40	c50.75	c52.10	c58.95	c60.65	c62.15	c81.05	c93.10
	Safety Traction Non-Skid	.....	qs25.00	.....	s31.30	qs32.30	35.70	38.80	.....	.....	q43.15	c44.55	c45.90	c47.50	c49.05	c51.80	.....	c53.70	c55.65	c59.60	c64.05	c65.40	c72.85	c75.65	c77.45	c96.35	c112.05
	Tubes	3.65	3.75	.....	4.60	4.95	5.15	5.45	.....	.....	6.10	6.20	6.40	6.65	6.75	6.90	.....	8.05	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25
NATIONAL	Plain	12.30	12.00	16.05	15.60	16.40	18.25	21.30	.....	.....	23.95	24.40	25.55	26.10	29.80	30.60	.....	34.05	35.10	36.75	37.35	42.75	41.95	47.50	44.40	.....	.....
	Non-Skid	12.90	12.65	16.85	16.30	17.25	19.15	22.30	.....	.....	25.05	25.60	26.70	27.40	31.35	32.15	.....	35.75	36.95	38.55	39.25	44.90	44.10	49.95	46.65	.....	.....
	Gray Tubes	3.25	3.20	3.60	3.95	4.00	4.05	4.80	.....	.....	5.00	5.10	5.25	5.40	6.10	6.30	.....	6.45	6.60	6.80	7.00	8.00	8.20	9.05	8.55	.....	.....
	Red Tubes	3.55	3.50	4.00	4.40	4.45	4.50	5.30	.....	.....	5.60	5.70	5.85	6.00	6.80	6.95	.....	7.15	7.35	7.50	7.75	8.80	9.15	10.00	9.40	.....	.....
NEEDHAM	Plain	qs13.20	qs14.30	.....	18.15	19.25	21.20	c23.80	.....	.....	28.35	c29.00	c30.40	c30.95	c32.25	c32.75	.....	c39.90	c41.25	c43.10	c43.65	c45.30	c49.05	c49.70	c51.60	s71.45	cs73.20
	Non-Skid	.....	.....	.....	20.90	21.90	24.30	c27.25	.....	.....	32.85	c33.35	c34.85	c35.50	c36.95	c37.45	.....	c46.55	c47.50	c49.45	c50.00	c51.90	c56.20	c56.95	c59.15	s81.85	cs83.90
	Tubes	2.80	2.90	.....	3.30	3.40	3.45	3.60	.....	.....	4.55	4.70	4.85	4.95	5.05	5.15	.....	6.10	6.20	6.30	6.40	6.60	7.55	7.70	7.85	8.45	8.55
NEWCASTLE	Plain	.....	14.75	.....	19.20	21.10	22.45	23.50	.....	.....	29.45	29.95	31.40	32.00	36.60	37.60	.....	.....	43.15	45.20	45.90	52.45	51.55	58.40	55.60	.....	.....
	Non-Skid	.....	16.30	.....	21.25	23.90	24.50	26.60	.....	.....	30.80	31.50	32.80	33.70	38.50	39.50	.....	.....	45.40	47.40	48.25	55.20	54.10	61.25	57.35	.....	.....
	Shenango Non-Skid	.....	.....	.....	28.15	.....	32.15	.....	.....	.....	.....	.....	c41.30	42.75	.....	.....	.....	.....	.....	c53.10	c57.65	.....	c65.55	.....	cs69.70	.....	.....
	Pure Gum Gray Tubes	.....	3.20	.....	4.10	4.25	s4.40	4.70	.....	.....	5.20	5.30	5.50	5.65	5.75	5.90	.....	.....	7.10	7.25	7.50	7.75	8.50	8.70	9.00	.....	.....
NORWALK	Plain	.....	s21.60	.....	s28.00	.....	.....	.....	.....	.....	.....	.....	qc44.00	c44.85	.....	.....	.....	.....	.....	qc62.10	cs63.00	.....	.....	.....	c73.45	.....	.....
	Non-Skid	.....	s22.75	.....	s29.45	s31.10	c33.85	.....	.....	.....	s43.05	c43.85	c46.10	c47.15	.....	cs50.10	.....	.....	c62.40	c65.15	c66.15	cs68.90	c72.85	cs73.85	c77.15	.....	.....
	Gray Tubes	3.30	3.35	3.95	4.15	4.25	4.40	5.20	5.30	.....	5.40	5.55	5.70	5.85	6.25	6.30	7.15	7.15	7.20	7.35	7.55	7.85	8.90	9.05	9.20	10.55	10.75
	Red Tubes	3.65	3.70	4.35	4.60	4.65	4.80	5.75	6.00	.....	5.95	6.15	6.30	6.45	6.90	6.95	7.90	7.90	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
PALMER	Tubes	.....	7.20	.....	7.90	.....	8.15	.....	.....	.....	9.10	9.25	9.40	9.65	9.80	10.10	10.80	11.10	11.40	11.75	12.25	.....	13.60	13.80	14.15	.....	.....
PARA-BELL	Plain	13.80	14.20	17.30	18.45	19.45	21.50	27.90	.....	29.85	28.25	28.80	30.10	30.80	37.20	32.85	.....	.....	41.60	43.45	44.15	45.90	49.55	57.85	52.55	.....	.....
	Non-Skid	14.50	14.95	.....	19.35	20.35	22.45	29.25	.....	.....	29.65	30.20	31.62	32.40	39.00	34.50	.....	.....	43.65	45.65	46.35	48.25	52.05	60.75	55.20	.....	.....
	Gray Tubes	2.95	3.00	3.40	3.75	3.80	3.85	4.55	.....	4.95	4.75	4.85	5.00	5.15	5.75	5.50	.....	.....	6.25	6.45	6.65	6.85	7.80	8.60	8.10	.....	.....
	Red Tubes	3.30	3.35	3.80	4.20	4.25	4.30	5.05	.....	5.50	5.30	5.40	5.55	5.70	6.45	6.10	.....	.....	7.00	7.15	7.35	7.65	8.70	9.50	8.95	.....	.....
PEARCE	Morton Plain	11.00	11.85	.....	15.35	16.20	17.65	20.00	.....	.....	24.00	24.95	25.20	25.75	26.95	27.35	33.10	34.10	34.20	35.75	36.20	39.85	43.95	44.55	45.30	.....	.....
	Non-Skid	12.00	12.85	.....	16.95	18.00	19.65	22.40	.....	.....	27.10	27.90	28.50	29.50	30.20	31.10	36.00	38.00	39.00	40.15	41.40	42.00	47.20	48.50	50.00	.....	.....
	Germantown Cord Plain	.....	17.50	.....	21.95	22.25	24.00	39.00	.....	.....	33.15	34.75	35.95	36.10	40.00	43.50	38.15	45.25	46.75	48.75	50.50	52.00	56.50	.....	58.15	.....	.....
	Non-Skid	.....	18.25	.....	23.75	25.00	27.30	41.50	.....	.....	36.35	37.10	38.95	39.70	42.35	49.00	45.00	50.20	51.90	54.25	55.00	57.30	63.80	.....	64.75	.....	.....
	Red Tubes	3.25	3.45	.....	3.95	4.10	4.25	4.50	.....	.....	5.35	5.45	5.75	5.95	6.20	6.40	6.50	6.75	7.45	7.55	7.80	8.05	9.00	9.20	9.30	.....	.....
PEERLESS	Non-Skid	.....	16.80	.....	21.35	23.00	24.95	.....	.....	.....	33.30	34.00	35.70	36.45	.....	.....	.....	.....	48.40	50.60	51.35	.....	.....	.....	62.95	.....	.....
	Gray Tubes	.....	3.05	.....	3.45	3.65	3.80	.....	.....	.....	4.90	5.05	5.25	5.35	.....	.....	.....	.....	6.50	6.75	6.90	.....	.....	.....	8.40	.....	.....
	Red Tubes	.....	3.40	.....	3.95	4.15	4.20	.....	.....	.....	5.35	5.50	5.70	5.95	.....	.....	.....	.....	7.25	7.40	7.55	.....	.....	.....	9.10	.....	.....
	Ribbed Tread	.....	15.00	.....	19.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
PENNSYLVANIA	Bar O Circle	12.80	13.45	.....	17.60	19.50	20.65	24.00	.....	.....	27.00	27.40	28.70	29.40	33.50	34.45	.....	38.40	39.70	41.40	42.05	48.15	47.35	53.60	50.10	65.15	67.80
	Vacuum Cup	17.15	17.70	23.50	22.65	24.20	26.75	30.55	38.70	42.50	35.65	36.30	38.40	39.	41.15	41.80	50.50	52.55	52.90	55.05	55.65	57.80	67.85	69.15	71.45	86.65	90.20
	Ebony Tread	15.45	16.00	21.20	20.40	21.80	24.10	27.50	34.80	38.25	32.10	32.65	34.55	35.2	37.00	37.60	45.45	47.30	47.65	49.55	50.10	52.05	61.10	62.20	64.30	78.00	81.25
	Ton-Tested Gray Tubes	2.80	2.90	3.15	3.40	3.55	3.70	4.05	4.40	4.90	4.95	5.05	5.25	5.4	5.55	5.75	6.50	6.65	6.70	6.80	6.95	7.25	8.15	8.25	8.40	8.80	9.00
PERFECTION	Plain	18.00	19.25	.....	23.20	24.65	27.50	29.75	.....	.....	32.10	34.10	35.20	36.40	37.60	38.85	40.10	41.35	42.70	43.90	45.25	46.45	52.60	53.85	54.00	72.70	76.00
	Non-Skid	21.25	22.25	.....	27.95	28.90	32.10	34.65	.....	.....	38.75	40.75	41.15	42.45	45.90	47.40	.....	48.30	50.00	52.50	55.00	57.35	65.20	67.50	69.00	85.75	87.55
	Gray Tubes	3.20	3.30	3.50	4.20	4.35	4.50	4.80	5.10	5.25	5.35	5.45	5.65	5.80	5.90	6.05	6.85	7.10	7.30	7.45	7.70	7.95	8.75	8.95	9.25	10.55	10.75
	Red Tubes	3.40	3.55	3.70	4.50	4.60	4.85	5.30	5.60	5.65	5.75	5.85	6.10	6.25	6.35	6.50	7.45	7.60	7.80	7.95	8.20	8.45	9.30	9.50	9.80	11.10	11.35

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
PHARIS	Plain	13.10	13.85	17.50	17.90	18.65	20.55	22.90	.....	.....	27.60	28.05	29.25	29.80	31.00	31.50	45.40	.....	40.00	41.55	42.10	43.55	47.25	47.85	49.70	.....	.....
	Non-Skid	.....	14.85	.....	19.15	19.95	22.00	24.60	.....	.....	29.50	30.05	31.40	31.90	33.20	33.75	47.75	42.20	42.80	44.50	45.00	46.65	50.60	51.30	53.15	53.05	73.70
	Gray Tubes	3.15	3.35	3.45	3.75	3.80	3.95	4.15	.....	.....	5.25	5.35	5.45	5.55	5.80	5.90	6.75	6.90	7.00	7.15	7.25	7.45	8.55	8.65	8.90	9.45	9.70
	Red Tubes	3.50	3.65	3.75	4.20	4.25	4.30	4.70	.....	.....	5.80	5.90	6.10	6.20	6.40	6.50	7.60	7.70	7.75	7.85	8.10	8.25	9.40	9.70	9.80	10.50	10.65
PORTAGE	Plain	s14.00	s15.10	s16.75	s19.60	s20.70	22.45	25.50	s27.00	s28.45	s30.05	30.60	32.10	32.85	34.35	35.00	s43.10	s44.55	43.65	45.75	46.40	48.30	52.20	s53.00	55.35	s79.70	.....
	Daisy Non-Skid	s16.20	s17.45	s19.30	s22.45	s23.70	25.90	29.35	.....	s32.80	s34.45	35.15	36.95	37.75	39.55	40.30	s49.75	51.15	50.25	52.50	53.35	55.60	60.05	s61.00	63.50	s87.70	s89.55
	Gray or Red Tubes	3.20	3.45	3.75	4.20	4.30	4.45	4.75	4.95	5.50	5.65	5.90	6.10	6.25	6.45	6.60	7.35	7.50	7.65	7.80	8.10	8.25	9.05	9.30	9.40	10.25	10.40
PORTER	Giant	qs15.00	qs16.45	.....	qs21.50	qs22.65	24.35	c26.50	.....	.....	qs31.65	c32.35	c33.30	c34.35	c35.25	c36.30	qc44.00	c45.25	c46.25	47.70	c48.80	c50.00	c56.10	cs57.20	c59.25	.....	.....
	Non-Skid	qs16.00	qs17.55	.....	qs22.85	qs24.25	26.30	c27.95	.....	.....	qs34.95	c35.45	c36.60	c37.40	c39.45	c40.00	qc47.75	c49.00	c49.75	51.15	c52.55	c53.90	c59.95	cs61.60	c62.95	.....	.....
	Gray Tubes	2.85	3.00	.....	3.60	3.70	3.75	3.95	.....	.....	4.75	4.95	5.05	5.25	5.45	5.60	6.20	6.35	6.50	6.60	6.75	6.95	7.85	8.00	8.15	.....	.....
	Red Tubes	3.15	3.40	.....	3.95	4.10	4.20	4.40	.....	.....	5.30	5.45	5.65	5.85	5.95	6.15	7.00	7.15	7.25	7.35	7.50	7.75	8.75	8.90	9.00	.....	.....
QUAKER	Plain	s17.50	s18.50	s19.95	23.10	s24.20	27.55	29.65	.....	.....	s34.55	35.00	36.50	37.10	c38.75	39.35	qs47.05	.....	50.35	c52.25	52.95	c54.90	c59.60	60.20	c62.60	cs81.60	cs84.70
	T.T.T. Non-Skid	s18.80	s20.40	s22.15	25.65	s26.65	30.40	33.05	.....	.....	s38.25	38.95	40.50	41.30	c43.05	43.70	qs40.59	.....	53.00	c55.10	55.70	c57.70	c62.65	63.40	c65.85	cs85.70	cs89.20
	Gray Tubes	3.20	3.35	3.50	3.75	3.95	4.00	4.20	4.35	5.00	5.10	5.40	5.50	5.60	5.80	5.90	6.80	7.00	7.05	7.15	7.25	7.45	8.55	8.65	8.90	9.45	9.85
	Red Tubes	3.50	3.70	3.90	4.15	4.35	4.40	4.60	4.85	5.50	5.55	5.95	6.05	6.15	6.40	6.50	7.55	7.70	7.75	7.85	8.00	8.20	9.40	9.50	9.80	10.40	10.90
RACINE	Plain	14.20	15.20	17.70	18.70	19.75	21.75	26.25	28.45	.....	28.70	29.25	31.25	32.05	32.90	33.45	39.60	40.45	41.75	42.35	43.75	46.15	51.50	53.00	54.50	68.95	71.25
	Country Road	16.55	17.75	20.85	21.55	22.60	25.50	28.75	33.00	.....	33.00	34.75	36.80	37.35	37.70	38.05	47.50	48.40	49.10	51.35	52.15	54.20	62.00	63.50	65.00	81.40	83.60
	Ribbed Cord	.....	.....	.....	.....	.....	39.80	.....	.....	.....	48.80	50.50	51.90	53.25	.....	.....	56.95	58.35	59.95	61.35	62.90	.....	74.60	76.30	78.00	92.50	94.60
	Non-Skid Cord	.....	.....	.....	.....	.....	42.35	.....	.....	.....	52.05	53.85	55.30	56.75	.....	.....	60.65	62.20	63.85	65.40	67.00	.....	79.40	81.40	83.20	98.60	100.85
	Gray Tubes	2.85	3.00	3.25	3.50	3.60	3.75	3.90	4.15	4.60	4.70	4.90	5.00	5.20	5.40	5.50	6.20	6.35	6.45	6.55	6.75	6.90	7.85	7.95	8.10	8.45	8.65
	Red Tubes	3.40	3.70	3.95	4.05	4.30	4.40	4.60	4.85	5.40	5.50	5.65	5.95	6.10	6.25	6.50	7.20	7.45	7.50	7.70	7.80	8.05	9.15	9.30	9.40	9.90	10.00
RACINE HORSESHOE	Plain	qs16.00	qs16.50	qs17.50	20.50	qs21.00	22.50	23.50	.....	qs28.50	qs26.50	28.50	29.00	29.50	31.00	31.50	qc36.50	qc36.50	36.50	38.00	39.00	40.00	44.00	45.00	46.00	cs65.00	cs66.00
	Non-Skid	qs17.00	qs17.50	qs19.50	21.50	qs22.00	24.00	27.00	.....	qs32.50	qs31.00	31.50	32.00	32.50	34.50	35.50	qc40.00	qc41.00	42.00	43.00	44.00	45.00	51.00	52.00	52.50	cs69.00	cs70.00
	Cord Non-Skid	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	qc46.50	qc47.50	48.50	.....	.....	.....	qc55.50	56.50	57.50	58.50	.....	68.50	.....	70.50	.....	cs88.50
	Gray Tubes	3.00	3.05	3.40	3.75	3.80	3.85	4.00	.....	4.70	4.75	4.85	5.00	5.15	5.45	5.50	6.15	6.15	6.25	6.45	6.65	6.90	7.80	8.00	8.10	8.75	9.25
	Red Tubes	.....	3.40	.....	4.25	4.35	4.45	.....	.....	.....	5.45	5.50	5.60	5.75	.....	6.25	.....	.....	7.50	7.75	7.80	7.90	8.80	8.95	9.25	9.50	9.75
RECORD	Ribbed Tread	.....	qs14.30	.....	qs18.35	.....	qc21.75	.....	.....	.....	qs28.50	qc29.20	c30.40	c31.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Red Tubes	3.50	3.40	3.80	4.20	4.25	4.35	4.65	4.95	5.35	5.50	5.60	5.85	6.10	6.25	6.35	.....	.....	7.30	7.40	7.50	7.75	8.90	9.20	9.00	.....	.....
	Gray Tubes	3.10	3.05	3.50	3.55	3.85	3.95	4.55	4.70	4.95	4.75	4.85	5.00	5.20	5.70	5.45	.....	.....	6.45	6.55	6.70	7.00	8.00	8.50	8.20	.....	.....
REPUBLIC	Plain	qs14.15	qs15.20	qs19.30	19.30	qs20.75	22.50	25.65	s32.60	s34.45	s30.05	30.70	32.25	32.95	34.45	35.00	41.05	c42.30	43.75	45.80	46.40	48.35	53.65	54.35	56.85	s79.05	s78.25
	Staggard Non-Skid	qs16.60	qs17.70	qs22.50	22.55	qs24.40	26.40	29.95	s38.40	s40.25	s35.20	35.90	37.70	38.50	40.30	40.90	48.10	c49.50	51.15	53.60	54.30	56.60	62.75	63.65	66.55	92.50	89.00
	Gray Tubes	2.90	2.95	3.20	3.45	3.60	3.75	4.15	4.40	4.90	5.05	5.20	5.35	5.55	5.70	5.85	6.55	6.75	6.80	6.95	7.05	7.35	8.25	8.40	8.50	8.95	9.10
	Blackline Red Tubes	3.35	3.55	3.85	4.15	4.35	4.40	4.65	4.90	5.45	5.60	5.70	5.95	6.20	6.40	6.50	7.20	7.30	7.60	7.70	7.90	8.15	9.15	9.30	9.50	9.90	10.20
REVERE	Plain	13.25	13.80	.....	17.95	18.85	20.80	27.15	.....	.....	27.45	28.00	29.30	30.05	36.20	31.90	.....	.....	40.45	42.25	42.90	44.65	48.20	56.25	51.10	.....	.....
	Anti-Skid Casings	15.25	14.50	.....	18.80	19.80	21.85	28.45	.....	.....	28.80	29.35	30.80	31.50	38.00	33.50	.....	.....	42.45	44.35	45.05	46.85	50.60	59.05	53.70	.....	.....
	Gray Tubes	2.85	3.00	.....	3.75	3.85	4.00	4.30	.....	.....	4.85	5.00	5.15	5.25	5.45	5.65	6.15	6.40	6.45	6.60	6.85	7.10	8.00	8.15	8.30	.....	9.40
	Red Tubes	3.65	3.75	.....	4.65	4.80	4.90	5.35	.....	.....	6.00	6.05	6.15	6.25	6.55	6.65	7.90	8.00	8.10	8.25	8.40	8.50	9.65	9.90	10.10	.....	11.25
	Granite Tread	.....	16.40	.....	21.35	22.45	24.55	.....	.....	.....	36.50	34.10	35.90	36.65	.....	38.95	.....	47.15	48.75	50.95	51.70	53.85	57.85	.....	61.25	.....	.....
	Cord Casings	.....	.....	.....	.....	.....	39.45	.....	.....	.....	.....	50.15	51.40	52.85	.....	55.80	56.30	57.95	59.60	61.00	62.40	63.95	73.95	75.65	77.40	.....	83.50
SAVAGE	Plain	qs14.15	qs14.35	.....	qs18.25	qs19.60	21.35	24.20	c30.90	s32.50	qs28.45	29.05	30.45	31.20	32.60	33.10	.....	s40.05	c41.35	c43.30	c43.95	c45.80	c50.75	c51.55	c53.80	.....	cs72.00
	Non-Skid	qs16.50	qs16.80	.....	qs21.35	qs23.00	24.95	28.35	c35.75	s37.50	qs33.30	34.00	35.70	36.45	38.10	38.70	qc45.45	s46.90	c48.40	c50.60	c51.35	c53.65	c59.40	c59.35	c62.95	.....	cs81.35
	Grafinite Tubes	3.75	3.90	.....	4.50	4.90	4.95	5.35	5.90	6.25	6.10	6.40	6.50	6.55	6.65	6.80	7.55	7.85	8.15	8.30	8.60	8.75	9.65	9.95	10.10	.....	12.05
SCHAVOIR	Gray Tubes	3.05	3.10	3.40	3.75	3.80	3.85	4.55	4.80	4.95	4.75	4.85	5.00	5.15	5.80	5.50	6.50	6.15	6.25	6.45	6.65	6.90	7.80	8.00	8.10	10.00	9.45
	Red Tubes	3.10	3.35	3.80	4.20	4.25	4.30	5.00	5.35	5.50	5.30	5.40	5.55	5.70	6.00	6.10	7.20	6.80	7.00	7.15	7.35	7.65	8.60	8.70	8.95	11.10	10.50
	Jumbo Red Tubes	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.70	6.90	7.05	7.15	7.35	7.50	.....	8.40	8.80	9.05	9.20	9.40	10.90	11.10	11.25	.....	13.15
SEMPLE	Semco Red Tubes	3.60	3.75	3.90	4.50	4.60	4.75	5.05	.....	.....	6.05	6.20	6.40	6.60	6.75	6.95	7.95	8.20	8.35	8.50	8.70	8.90	9.85	10.05	10.35	11.00	11.30
SOUTHERN	Plain	qs12.80	qs13.20	.....	q17.00	qs18.10	20.10	c22.50	.....	.....	.....	qc27.25	c28.40	c29.00	c30.00	c30.45	.....	.....	.....	c41.10	c41.80	c43.10	.....	qc50.00	c51.70	.....	.....
	S Non-Skid	.....	qs14.70	.....	q19.50	.....	22.60	.....	.....	.....	28.70	qc30.10	c31.45	c32.20	.....	c33.65	cs42.60	.....	qc44.45	c46.10	c46.65	c48.25	qc54.85	.....	c57.65	.....	.....
	Red Tubes	3.45	3.70	.....	4.25	4.35	4.40	4.60	.....	.....	5.85	6.00	6.20	6.30	6.45	6.65	7.55	.....	7.75	7.90	8.00	8.20	9.15	9.30	9.45	.....	.....
SPEEDWAY	Non-Skid	.....	qs18.66	.....	qs23.33	.....	c30.00	c37.33	.....	.....	qs34.99	c36.40	c37.80	c39.20	.....	c42.00	.....	qc53.33	c53.33	c54.66	c56.00	qc59.33	qc68.60	qc70.00	qc70.00	.....	.....
	Red Tubes	4.33	4.46	.....	5.66	6.00	6.33	6.66	6.98	6.98	7.33	7.66	8.00	8.33	8.66	9.00	.....	9.69	9.85	10.08	10.40	10.77	12.00	12.66	13.33	14.66	15.33
STANDARD FOUR	Super Tread	14.10	14.70	.....	18.70	20.45	22.10	.....	.....	.....	29.10	29.65	31.35	31.85	.....	.....	.....	.....	43.65	45.20	45.95	47.80	53.20	.....	56.05	.....	.....
	Non-Skid	15.10	15.70	.....	20.00	.....	23.60	.....	.....	.....	31.55	32.10	33.90	34.50	.....	36.90	.....	46.35	46.75	48.60	49.20	51.05	59.95	.....	63.10	.....	.....
	Gray Tubes	2.85	2.90	.....	3.45	3.60	3.75	3.95	.....	.....	4.60	4.85	5.05	5.20	5.35	5.45	.....	6.40	6.50	6.70	6.95	7.10	7.70	7.90	8.15	.....	9.45
	Red Tubes	3.30	3.40	.....	4.15	4.25	4.40	4.65	.....	.....	5.50	5.65	5.90	6.15	6.30	6.45	.....	7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	.....	10.80
STAR	Ribbed Tread	.....	qs22.00	.....	qs26.50	qs28.40	c30.45	.....	.....	.....	s37.50	qc39.20	qc40.50	c41.75	.....	.....	c51.90	qc53.65	c55.30	c57.20	c59.00	.....	c63.00	cs71.10	c72.25	cs90.00	.....
	All Star Non-Skid	.....	qs24.00	.....	qs20.00	.....	c32.10	.....	.....	.....	s39.70	qc41.00	qc42.25	c43.70	.....	c46.40	c53.25	qc55.00	c56.70	c58.50	c60.25	cs61.75	c70.00	cs72.50	c75.00	cs93.00	cs96.50
	Red Tubes	.....	3.65	.....	4.70	4.90	5.10	5.40	.....	.....	5.95	6.10	6.30	6.45	6.65	6.80	7.60	7.80	8.00	8.20	8.45	8.65	9.45	9.65	10.00	11.60	11.65
	Gray Tubes	.....	3.20	.....	3.85	4.90	4.05	.....	.....	.....	5.10	5.20	5.35	5.50	.....	.....	.....	.....	6.55	6.80	7.00	.....	.....	.....	.....	.....	.....
STERLING	Sterling High Bar Non-Skid	qs17.46	q20.80	.....	qs26.67	28.32	cs29.81	.....	.....	.....	34.76	c43.64	c45.10	c46.55	.....	s49.46	s58.19	c59.65	c61.10	c62.56	c64.00	c65.46	c72.73	c74.20	c77.10	s81.46	s84.38
	Sterling Seamless Red Tubes	3.71	3.97	4.28	5.40	5.50	5.66	6.05	6.31	6.29	6.47	6.59	6.83	7.02	7.14	7.38	8.11	8.40	8.65	8.89	9.13	9.44	10.46	10.70	10.89	12.46	12.83
STRONGHOLD	Plain	.....	17.20	.....	22.05	23.50	25.45	28.55	.....	.....	32.60	33.30	34.65	35.35	37.10	37.70	.....	41.15	42.35	43.70	44.90	46.15	52.30	53.85	55.30	.....	.....
	Stronghold Non-Skid	.....	18.85	.....	24.15	25.45	27.75	31.25	.....	.....	35.70	36.25	37.95	38.70	40.60	41.15	45.50	47.10	48.75	50.35	54.20	56.60	60.70	61.45	63.90	.....	.....
	Gray Tubes	.....	3.60	.....	4.40	4.45	4.55	4.85	.....	.....	5.90	6.05	6.30	6.50	6.70	6.90	7.70	7.90	8.05	8.20	8.35	8.60	9.65	9.80	10.05	.....	.....
	Red Tubes	.....	3.95	.....	4.80	4.85	5.00	5.20	.....	.....	6.55	6.75	6.95	7.10	7.30	7.55	8.25	8.40	8.55	8.70	9.10	9.25	10.40	10.55	10.75	.....	.....

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	36x3½	30x4	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
SWINEHART	Plain	qs14.00	qs15.10	qs19.20	s19.20	qs20.60	22.40	25.40	s28.50	.....	qs29.85	30.50	32.00	32.70	c34.25	34.75	s40.80	s42.00	43.45	c45.45	46.15	cs48.10	c53.30	s54.10	c56.50	cs79.05	cs74.20
	Ribbed	qs15.70	qs16.80	qs21.35	s21.35	qs23.00	25.00	28.30	s31.70	.....	qs33.30	34.00	35.70	36.45	c38.10	38.70	s45.45	s46.90	48.40	c50.60	51.40	cs53.60	s63.50	s64.35	67.20	cs92.40	cs88.00
	Non-Skid	.....	.....	qs22.40	s22.40	qs24.15	26.25	29.75	s33.35	.....	qs34.90	35.70	37.45	38.30	c40.05	40.65	s47.70	s49.30	50.80	c53.15	53.95	cs56.30	s66.65	s67.60	70.55	cs97.25	cs92.65
	Tubes	2.90	3.00	3.20	3.40	3.55	3.60	3.80	3.95	.....	4.70	4.85	5.00	5.10	5.20	5.30	6.20	6.30	6.35	6.45	6.60	6.80	7.75	7.90	8.05	8.40	8.60
TEN BROECK	Plain	qs12.39	qs13.09	qs16.63	q16.56	qs17.39	19.16	21.37	.....	.....	qs25.60	25.99	27.19	27.69	28.77	29.09	.....	.....	c38.00	39.46	39.90	41.42	s46.55	s47.11	s47.68	.....	cs64.00
	Non-Skid	qs13.91	qs14.86	.....	q19.48	qs20.42	22.26	25.16	.....	qs29.21	qs30.48	31.05	32.63	33.33	34.91	35.47	.....	.....	c43.13	45.19	45.72	46.46	cs51.16	s51.93	54.14	.....	cs74.56
	Ribbed	.....	qs14.86	.....	q19.48	qs20.42	22.26	.....	.....	.....	qs30.48	31.05	32.63	33.33	.....	.....	.....	.....	43.13	45.19	.....	.....	s51.16	s51.93	.....	.....	s74.56
	Gray Tubes	3.02	3.14	3.32	3.56	3.68	3.75	3.92	4.11	4.77	4.89	5.08	5.20	5.32	5.44	5.56	6.46	.....	6.65	6.77	6.89	7.07	8.10	8.22	8.40	9.00	9.13
THERMOID	Non-Skid and Ribbed Tread	qs24.70	qs24.85	.....	qs31.25	qs33.40	c35.90	c39.00	.....	qs43.60	qs43.35	c44.85	c46.15	c47.80	48.50	c51.60	c57.50	qc55.95	c57.20	c59.65	c63.25	c65.10	c72.55	sc75.00	c77.75	sc96.05	sc103.05
	Brown and DeLuxe Red Tubes	q3.80	3.85	.....	4.90	5.00	5.15	5.45	.....	6.10	6.20	6.30	6.40	6.60	6.80	7.00	8.00	8.15	8.30	8.45	8.75	9.10	10.00	10.20	10.50	12.10	12.40
TOLIVER	6000 Mile Plain	17.95	18.60	23.60	22.95	24.95	qc26.90	qc29.95	.....	39.70	34.90	qc35.50	qc37.40	qc37.95	qc39.40	qc39.85	.....	.....	51.35	qc52.90	qc53.95	qc55.80	qc61.85	qc62.90	qc65.35	.....	.....
	6000 Non-Skid	19.60	20.55	26.50	25.60	27.25	qc29.90	qc33.85	.....	46.35	39.25	qc39.90	qc41.95	qc42.75	qc44.90	qc45.60	.....	.....	57.25	qc59.45	qc59.95	qc62.35	qc72.85	qc73.80	qc76.55	.....	.....
	4000-Mile Plain	.....	13.40	.....	17.45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Non-Skid	.....	14.10	.....	18.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Gray Tubes	3.10	3.05	3.40	3.75	3.80	3.85	4.55	.....	4.95	4.75	4.85	5.00	5.15	5.80	6.00	.....	.....	6.25	6.45	6.65	7.60	7.80	8.60	8.10	.....	.....
	Red Tubes	3.60	3.90	.....	4.30	4.45	4.65	5.00	.....	.....	5.50	5.85	6.10	6.25	6.40	6.60	7.45	.....	7.95	8.15	8.45	.....	9.35	9.70	10.20	11.40	11.80
	Puncture-proof Inner Tubes	4.40	4.35	4.55	5.35	5.45	5.50	6.50	.....	7.10	6.80	6.95	7.15	7.35	8.30	8.60	.....	.....	8.95	9.20	9.50	10.90	11.15	12.30	11.60	.....	.....
TYRIAN	Plain	qs14.30	s16.00	cs17.60	s20.00	qs21.15	c23.05	c26.10	.....	cs29.00	qs30.60	c31.35	c32.90	c33.65	c35.15	c35.70	.....	cq42.70	c44.70	c46.70	c47.35	c49.30	c52.00	c52.85	c55.25	cs73.80	cs76.10
	Holdtite Non-Skid	qs15.60	s17.30	cs18.85	s22.10	qs23.25	c25.10	c28.15	.....	cs31.80	qs33.30	c34.05	c35.65	c36.30	c37.90	c33.45	.....	cq46.10	c48.10	c50.10	c50.75	c52.75	c55.50	c56.25	c58.65	cs79.90	cs82.25
	Extra Heavy Red	3.55	3.70	3.85	4.25	4.35	4.40	4.80	.....	5.60	5.75	5.90	6.10	6.20	6.40	6.65	.....	7.85	8.00	8.20	8.45	8.50	9.70	10.10	10.25	11.30	11.50
UNITED STATES	Plain	13.25	13.80	16.85	17.95	18.85	20.80	27.15	30.25	33.75	27.45	28.00	29.30	30.05	36.20	31.90	43.80	39.15	40.40	42.25	42.90	44.65	48.20	56.25	51.10	76.90	91.45
	Usco Non-Skid	15.25	14.50	17.70	18.80	19.80	21.85	28.45	.....	.....	28.80	29.35	30.80	31.50	33.00	33.50	46.00	41.10	42.45	44.35	45.05	46.85	50.60	59.05	53.70	80.70	.....
	Chain Non-Skid	16.50	16.40	19.95	21.35	22.45	24.55	31.90	35.60	41.10	33.50	34.10	35.90	36.65	44.15	38.95	52.70	47.15	48.75	50.95	51.70	53.85	57.85	67.65	61.25	91.45	109.70
	Nobby Non-Skid	20.70	22.10	28.30	28.70	30.25	33.00	43.05	47.80	49.20	40.00	40.80	42.85	43.65	49.85	46.60	63.20	55.20	57.10	59.65	60.50	63.05	70.20	71.25	74.30	93.30	100.50
	Royal Cord Non-Skid	.....	.....	.....	.....	.....	39.45	.....	.....	.....	.....	50.15	51.40	52.85	.....	55.80	56.30	57.95	59.60	61.00	62.40	63.95	73.95	75.65	77.40	.....	83.50
	Gray Tubes	2.85	3.00	3.15	3.75	3.85	4.00	4.30	4.50	4.70	4.85	5.00	5.15	5.25	5.45	5.65	6.15	6.40	6.45	6.60	6.85	7.10	8.00	8.15	8.30	9.25	9.40
	Red Tubes	3.65	3.75	4.00	4.65	4.80	4.90	5.35	5.45	5.85	6.00	6.05	6.15	6.25	6.55	6.65	7.90	8.00	8.10	8.25	8.40	8.50	9.65	9.90	10.10	11.10	11.25
VICTOR	Plain	17.10	18.05	.....	22.25	.....	25.85	.....	.....	.....	34.55	35.15	36.70	37.30	38.90	39.30	.....	.....	46.50	48.00	48.85	50.70	.....	.....	60.60	.....	.....
	Ribbed	.....	18.90	.....	23.45	.....	27.20	.....	.....	.....	36.25	37.90	38.50	39.20	.....	.....	.....	.....	48.90	50.95	51.40	.....	60.65	61.45	63.75	.....	.....
	Non-Skid	19.10	20.25	.....	25.15	28.15	28.85	.....	.....	.....	33.72	39.40	41.10	41.90	43.55	44.00	53.10	53.35	53.90	55.00	57.75	59.75	68.00	68.75	71.40	91.45	92.40
	Victor Gray Tubes	3.10	3.30	.....	3.85	4.15	4.25	.....	.....	.....	5.20	5.30	5.45	5.60	5.85	6.00	6.80	6.95	7.10	7.25	7.45	7.60	8.50	8.65	8.80	9.35	9.65
	Victor Red Tubes	3.40	3.60	.....	4.25	4.80	4.90	.....	.....	.....	5.75	5.95	6.10	6.30	6.45	6.60	7.70	7.75	7.90	8.15	8.30	8.45	9.40	9.60	9.80	10.60	10.75
	Springfield Tubes	4.25	4.50	.....	5.55	5.70	5.80	.....	.....	.....	6.75	6.90	7.10	7.25	.....	7.55	.....	8.85	9.05	9.30	9.50	9.70	10.55	10.80	11.00	12.80	13.45
	Springfield Red Tubes	4.60	4.85	.....	6.00	6.10	6.20	.....	.....	.....	7.30	7.40	7.60	7.75	.....	8.15	.....	9.60	9.80	10.05	10.25	10.45	11.40	11.60	11.90	13.90	14.55
VITALIC	Non-Skid	.....	qs15.50	.....	qs20.10	.....	q23.55	.....	.....	.....	qs30.80	qc31.45	32.85	33.70	.....	.....	.....	.....	.....	47.40	48.30	50.35	qc54.20	.....	57.35	.....	.....
	Red and Gray Tubes	3.75	3.85	4.00	4.60	4.75	4.85	5.10	5.25	5.95	6.05	6.15	6.25	6.40	6.50	6.60	7.80	7.90	8.05	8.15	8.30	8.45	9.90	10.00	10.20	11.85	12.10
	Extra Heavy Gray Tubes	4.25	4.35	4.60	5.15	5.35	5.50	5.85	6.00	6.70	6.80	7.05	7.20	7.35	7.55	7.70	8.80	8.95	9.15	9.30	9.45	9.70	11.35	11.55	11.75	13.50	14.05
VULCAN	Gray Tubes	3.30	3.35	.....	4.15	4.25	4.40	5.20	.....	.....	5.40	5.55	5.70	5.85	6.25	6.30	.....	.....	7.20	7.35	7.55	7.85	8.90	9.05	9.20	10.55	10.75
	Indian Red Tubes	3.65	3.70	.....	4.60	4.65	4.80	5.75	.....	.....	5.95	6.15	6.30	6.45	6.90	6.95	.....	.....	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
WILSON	Wearwell Plain	q12.55	q12.20	.....	q15.85	.....	q18.55	.....	.....	.....	.....	q24.75	.....	q26.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Wearwell Non-Skid	q13.15	q12.80	.....	q16.60	q17.55	q19.45	.....	.....	.....	q25.45	q26.00	27.15	q27.85	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Wearwell Gray Tubes	3.10	3.05	.....	3.75	3.80	3.85	.....	.....	.....	4.75	4.85	5.00	5.15	5.80	5.50	.....	.....	6.25	6.45	6.65	6.90	7.80	8.60	8.10	9.25	.....
	Wearwell Red Tubes	3.40	3.35	.....	4.20	4.25	4.30	.....	.....	.....	5.30	5.40	5.55	5.70	6.45	6.10	.....	.....	7.00	7.15	7.35	7.65	8.70	9.50	8.95	10.30	.....
	Wilson Non-Skid	.....	.....	.....	.....	.....	.....	.....	.....	.....	qc49.25	.....	qc53.90	.....	.....	.....	.....	.....	.....	qc65.45	.....	qc67.75	cs78.75	.....	.....	c82.55	qc90.00	.....
	Wilson Gray Tubes	3.40	3.35	.....	4.20	4.25	4.30	.....	.....	.....	5.30	5.40	5.55	5.70	6.45	6.15	.....	.....	7.00	7.15	7.35	7.60	8.50	8.70	8.85	9.40	.....
	Wilson Red Tubes	3.70	3.65	.....	4.80	4.85	4.90	.....	.....	.....	6.00	6.05	6.10	6.20	7.09	6.79	.....	.....	7.70	7.85	8.05	8.35	9.35	9.55	9.75	10.40	.....
WOODWORTH	Plain	23.90	25.30	.....	32.60	33.25	36.30	39.90	.....	.....	46.85	47.90	49.90	51.00	.....	53.95	61.15	.....	65.00	66.20	68.75	70.90	81.50	82.40	85.80	.....	.....
	Non-Skid	25.75	27.90	.....	34.90	36.45	38.80	43.95	.....	.....	49.90	53.40	55.25	56.80	.....	59.80	64.15	.....	68.75	70.10	73.35	74.80	85.75	86.70	90.10	.....	.....
	Tubes	3.90	4.00	.....	4.40	4.55	4.65	4.95	.....	.....	6.35	6.60	6.70	6.80	6.90	6.90	7.10	.....	8.65	8.90	9.20	9.40	10.00	10.35	10.55	.....	.....
ZEE-ZEE	"Z" White Tread Non-Skid	.....	18.82	.....	21.67	23.39	24.12	.....	.....	.....	32.83	34.37	35.61	36.39	37.71	33.89	47.52	48.42	49.33	50.09	52.04	53.70	56.22	57.95	58.86	72.90	78.26
	Brazilian Tubes	3.81	4.11	4.35	4.71	4.82	4.93	5.05	.....	6.04	6.16	6.28	6.57	6.80	6.89	7.06	8.10	8.29	8.41	8.45	8.59	8.95	10.67	10.76	11.23	12.44	13.04
	Climax Non-Skid	.....	10.50	.....	11.70	12.50	13.25	.....	.....	.....	14.25	15.25	16.45	17.40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Samson Tread Non-Skid	.....	14.10	.....	18.25	19.30	21.40	.....	.....	.....	28.00	28.60	29.85	30.65	.....	.....	33.90	40.10	41.30	43.10	43.90	44.60	49.25	52.15	.....	.....	.....

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

These Tables are for your constant consultation and should be of great value in the conduct of your business—

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Trucks — MOTOR WORLD GUIDE — Trucks

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES: Kind	TIRES: Sizes in Ins. Front	TIRES: Sizes in Ins. Rear	MOTOR: Make Engine	MOTOR: No. of Crankshaft Bearings	MOTOR: Cylinders Bore and Stroke	MOTOR: S. A. E. Hp.	MOTOR: Cylinders Cast	MOTOR: Valves Placed	MOTOR: Spark Plug	MOTOR: Cooling—Water Circulation	MOTOR: IGNITION Type	MOTOR: IGNITION Make	MOTOR: IGNITION Spark Advance	MOTOR: Electric System—Type and Make	MOTOR: GOVERNOR Type	MOTOR: GOVERNOR Drive	MOTOR: GOVERNOR Make	MOTOR: SPEED Motor in r.p.m.	MOTOR: SPEED Truck in m.p.h.	MOTOR: FUEL SYS. Carbureter Make	MOTOR: FUEL SYS. Fuel Feed	MOTOR: FUEL SYS. Tank Location	TRANSMISSION: CLUTCH Type	TRANSMISSION: CLUTCH Make	TRANSMISSION: GEARSET Make	TRANSMISSION: GEARSET Type	TRANSMISSION: GEARSET Location	TRANSMISSION: Speeds	TRANSMISSION: Total Gear Reduction in High	TRANSMISSION: Rear Axle	TRANSMISSION: Springs, Make	TRANSMISSION: Universals, Make	TRANSMISSION: Final Drive	TRANSMISSION: Propulsion Taken By	TRANSMISSION: Torque Taken By	BRAKES: Hand Brake	BRAKES: Foot Brake	Steering Gear
A & B.....3T	3	$4500	144	s.	48x3½d	48x3½d	own...	3	4-5½x4½	42.8	2	l..	..	p.	d.	Bosch..	h.	G-E.....	....	.....	None..	1200	20	Schblr..	g.	s.	...	none...	own...	elect	amid..	2	28.0	own...	Perf...	Franck	int-g..	rad-rd.	rad-rd.	ext-r-w	ex-f-w..	Gemr..
A & B.....5T	5	4750	144	s.	48x3½d	48x5d	own...	3	4-5½x4½	42.8	2	l..	..	p.	d.	Bosch..	h.	G-E.....	....	.....	None..	1200	18	Schblr..	g.	s.	...	none...	own...	elect	amid..	2	28.0	own...	Perf...	Franck	int-g..	rad-rd.	rad-rd.	ext-r-w	ex-f-w..	Gemr..
Acason.....B	1½	2400	150	s.	36x3½	36x5	Wauk.	3	4-3½x5½	22.5	2	..	..	p.	s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1500	18	Stmbg..	v.	s.	dp.	B&Bek.	Covert..	selec	unt-m.	3	9.2	Timkn.	Dtrt...	Spicer..	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Acason.....H	2	2750	150	s.	36x4	36x7	Wauk.	3	4-4½x5½	29.0	2	l..	..	p.	s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1200	15	Stmbg..	v.	s.	dd.	Muncie	Muncie	selec	unt-m.	4	7.75	Timkn.	Dtrt	Spicer..	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Acason.....L	3½	3600	172	s.	36x5	36x5d	Wauk.	3	4-4½x6½	29.0	2	l..	..	p.	s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1200	12	Stmbg..	v.	s.	dd.	Muncie	Muncie	selec	unt-m.	4	10½	Timkn.	Dtrt	Spicer..	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Acason.....M	5	4600	{172 {187	s.	36x6	40x6d	Wauk.	3	4-4½x6½	36.1	2	l..	..	p.	s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1000	10	Stmbg..	v.	s.	dp.	B&Bek.	Cotta..	selec	unt-m.	3	11½	Timkn.	Dtrt...	Spicer..	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Acason..Light Tractor	6	2850	114	s.	36x4	36x7	Wauk.	3	4-4½x5½	29.0	2	l..	..	p.	s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1200	15	Stmbg..	v.	s.	dd.	Muncie	Muncie	selec	unt-m.	4	9½	Timkn.	Dtrt...	Spicer..	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Acason.Heavy Tractor	6	4200	130	s.	36x5	36x5d	Wauk.	3	4-4½x6½	36.1	2	l..	..	p.	s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1000	10	Stmbg..	v.	s.	dp.	B&Bek	Cotta	selec	unt-m.	3	10½	Timkn.	Dtrt...	Spicer..	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Acme.....B	1	1900	130	s.	34x3	34x4	Cont..	3	4-3½x5	22.5	4	l..	..	t.	s.	Eismn..	h.	l, G&D...	cnt.	.....	Pierce..	1700	20	Rayfld	v.	s..	dp.	B&Bek.	Cotta	selec	unt-m.	3	7.75	Timkn.	Dtrt...	Blood	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Ross...
Acme.....A	2	2600	148	s.	36x4	36x6	Cont..	3	4-4½x5½	27 2	4	l..	..	p.	s	Eismn.	h	l, G&D...	cnt	.....	Pierce..	1350	15	Rayfld	v.	s..	dp.	B&Bek.	Cotta	selec	unt-m.	3	8.50	Timkn	Dtrt...	Blood	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Ross...
Acme.....C	3½	3500	168	s.	36x5	40x5d	Cont..	3	4-4½x5½	32 4	2	l..	..	p	s	Eismn.	h	l*.....	cnt	.....	Pierce.	1200	12	Rayfld	v	s..	dp	B&Bek.	Cotta	selec	amid.	3	12 0	Timkn	Dtrt...	Blood	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Ross...
Acme.....D	4	3900	168	s.	36x5	40x5d	Cont..	3	4-4½x5½	32 4	2	l..	..	p	s	Eismn.	h	.....	cnt	.....	Pierce.	1200	12	Rayfld	v	s	dp	B&Bek	Cotta	selec	amid.	3	13.6	Timkn	Dtrt ..	Blood.	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Ross...
American.....30	3½	3450	158	s.	36x5	36x5d	Cont..	..	4-4½x5½	32.4	2	..	..	p	s	Eismn.	h	l*.....	cnt	motor.	Pierce.	1143	14	Stmbg..	g.	..	dp	B&Bek.	Covert	selec	amid.	4	8.75	Shldn	Perf....	Evans.	worm	sprgs.	sprgs.	int-r-w	int-r-w.	Lvine..
Armleder.....HW	2	2900	148	s	36x4	36x7	Cont.	3	4-4½x5½	27 2	4	l..	..	p	s	Eismn.	h	l*.....	cnt	shaft.	Pierce.	1200	15	Schblr.	g.	s	dp.	B&Bek.	Covert	selec	unt-m.	3	8.5	Timkn	Mthr...	Spicer.	worm	rad-rd.	sprgs.	int-r-w	int-r-w	Ross...
Armleder.....KW	3½	3850	156	s.	36x5	36x5d	Cont.	3	4-4½x5½	32 4	2	l..	..	p.	s.	Eismn.	h.	l*.....	cnt.	shaft.	Pierce.	1000	12	Schblr.	g.	s	dd	B-Lipe	B-Lipe	selec	unt-m.	3	8.75	Timkn	Mthr...	Spicer.	worm	rad-rd.	sprgs.	int-r-w.	ext-sht.	Ross...
Atlas.....18	½	985	118	p.	32x4	32x4	Lycmg	2	4-3½x5	19 6	4	l..	..	t	s.	Remy	h	Remy.....	....	.....	None	1600	30	Zenith..	g.	s.	d.	B&Bek.	Covert	selec	unt-m.	3	4.7	Hess.	Rolnd..	Arvac.	sp-bv.	sprgs.	sprgs.	ext-r-w.	int-r-w.	Lvine..
Atterbury.....7R	1½	2475	140½	s.	36x3½	36x5	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	s.	Eismn.	f..	.....	cnt	motor.	Pierce..	1200	15	Zenith..	g.	s.	dd	B-Lipe	B-Lipe	selec	unt-m.	4	8.5	Timkn	Sp-Prch	Spicer.	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Gemr..
Atterbury.....7C	2	{2875 {2975	153½ 171½	s	36x3½	36x4d	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	s.	Eismn.	f..	.....	cnt.	motor.	Pierce..	1200	15	Zenith..	g.	s.	dd	B-Lipe	B-Lipe.	selec	unt-m.	4	8.5	Timkn	Sp-Prch	Spicer.	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Gemr..
Atterbury.....7D	3½	{3775 {3875	167½ 192	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	4	l..	..	p	d.	Eismn..	h.	.....	cnt.	motor.	Pierce..	1125	13	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	10.3	Timkn.	Sp-Prch	Spicer..	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Autocar.....21F	2	2050	97	s*	34x4*	34x5*	own...	2	2-4½x4½	18.1		l..	..	p	s.	Bosch*	f..	.....	....	.....	.....	.....	..	Stmbg..	..	s	dp	own...	.....	prog	amid..	3	7.1	own..	.....	.....	d-red..	sprgs..	sprgs.	int-r-w.	ext-r-w.	.....
Available.....1	1	1775	132	s	36x3½	36x5	Cont..	3	4-3½x5	22.5	4	l..	..	t	s.	Bosch	f..	None....	none	.....	.....	.....	..	Stmbg..	g.	s.	dd	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn	Tuthill	Spicer.	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Available.....2	2	2450	150	s	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	s.	Bosch.	f..	None....	none	.....	.....	.....	..	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.7	Timkn	Tuthill	Spicer.	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Available.....3	3½	3450	150	s	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Bosch.	f..	None....	cnt.	motor.	Pierce..	1214	14	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	10.3	Timkn.	Tuthill	Spicer.	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Available.....5	5	4500	168	s	36x6	40x6d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Bosch..	f..	None....	cnt.	motor.	Pierce..	1175	12	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	11.7	Timkn.	Tuthill.	Spicer.	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Avery.....B	2	2700	128	s.	36x4	36x3½d	.....	..	4-4½x5	36.1	1	l..	..	p.	d.	Eismn..	a.	.....	cnt.	motor.	.....	1200	14½	Rayfld	....	....	dd.	.....	.....	selec	unt-js.	3	3.5	.....	.....	.....	.....	d-chn.	.....	rad-rd	.....	.....	.....
Avery.....B	3	3200	128	s.	38x5	38x4d	.....	..	4-4½x5	36.1	1	l..	..	p.	d.	Eismn..	a.	.....	cnt.	motor.	.....	1200	13	Rayfld	....	....	dp.	.....	.....	selec	unt-js.	3	3.5	.....	.....	.....	.....	d-chn.	.....	rad-rd	.....	.....	.....
Avery.....A	3	2500	140	s.	38x5	38x4d	.....	..	4-4½x5	36.1	1	l..	..	p.	d.	Eismn.	a.	.....	cnt.	motor.	.....	1200	12	Rayfld	....	....	dd.	.....	.....	selec	unt-js.	3	3.5	.....	.....	.....	.....	d-chn.	.....	rad-rd	.....	.....	.....
Barber Tractor.....	6	2500	84	s.	34x3½	34x7	Buda..	..	4-4½x5½	29.0	4	l..	..	p.	s.	Bosch..	h	.....	....	.....	.....	.....	..	Stmbg..	..	s.	d.	Fuller.	Fuller.	selec	.....	..	..	own..	.....	.....	.....	worm	sprgs..	sprgs.	int-r-w	ext-r-w.	Ross...
Beck.....A	1	1180	124	s.	34x3	34x4	Cont..	..	4-3½x5	19.6	2	l..	..	p.	s.	Bosch.	f..	l Vesta...	cnt	motor.	Pierce..	2000	18	Stmbg..	g.	s.	dd	Fuller.	Fuller..	selec	unt-m.	3	6.0	Clark..	Hig....	Blood.	int-g..	sprgs.	sprgs.	ext-r-w	int-r-w	Lvine..
Beck.....B	1½	1440	124	s.	34x3½	34x5	Cont..	..	4-3½x5	22.5	4	l..	..	p.	s.	Bosch.	f..	l, Vesta...	cnt	motor.	Pierce..	2000	18	Stmbg..	g.	s.	dd	Fuller.	Fuller..	selec	unt-m.	3	6.0	Clark..	Hig....	Blood.	int-g..	sprgs.	sprgs	ext-r-w.	int-r-w	Lvine..
Beck.....C	2	1860	144	s.	36x4½	34x6	Cont..	..	4-4½x5½	28.9	2	l..	..	p.	s.	Bosch.	f..	l, Vesta...	cnt	motor	Pierce..	1500	12	Stmbg..	g.	..	dd	Fuller.	Fuller..	selec	unt-m.	3	9.0	Clark..	Hig....	Blood.	int-g..	sprgs.	sprgs.	ext-r-w.	int-r-w	Lvine..
Beech Creek.....3A	3	3850	132	s.	36x6	36x6	Wauk.	3	4-4½x5½	29.0	2	l..	..	p.	s.	Eismn.	h.	.....	cnt.	motor.	Wauk..	1000	12	King....	v.	s.	dp	B-Bek..	own....	selec	amid..	6	8.0	own...	.....	.....	bevl-4.	rad-rd.	sprgs.	ext-r-w.	ext-sht	own....
Bessemer.....G	1	1350	124	s.	34x3	34x4	Cont..	3	4-3½x5	19.6	4	l.	..	t.	s.	Dixie..	h.	.....	....	.....	none..	1350	..	Zenith..	g.	s.	dd.	Fuller.	Fuller..	selec	unt-m.	3	7.0	Torbn.	Perf....	Blood.	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w	Ross...
Bessemer.....J	2	*2200	158*	s.	36x4	36x4d	Cont.	3	4-4½x5½	27.2	4	l.	..	p.	s.	Dixie..	h.	.....	cnt	motor.	Pierce..	1250	15	Rayfld	g.	s.	c.	Hart...	B-Lipe.	selec	amid..	4	8.0	Torbn.	Perf....	Spicer.	int-g..	sprgs.	sprgs.	int-r-w	ext-r-w	Ross...
Bessemer.....K	3½	3450	150	s.	36x5	36x5d	Cont.	3	4-4½x5½	32.4	2	l.	..	p.	s.	Dixie..	h.	.....	cnt	motor.	Pierce.	1250	12	Rayfld	g.	s.	c	Hart...	B-Lipe.	selec	amid..	4	10.3	Torbn..	Perf....	Spicer..	int-g..	rad-rd.	sprgs.	int-r-w	int-r-w	Ross...
Bethlehem.....	1½	1245	126	s.	34x3	34x4	G.B.S.	3	4-3½x4½	22.5	4	l.	..	t.	s.	Bring..	h.	.....	cnt	d-shft.	Pierce.	1300	18	Schblr..	g.	s.	d	Dtroit..	Dtroit..	selec	unt-m.	3	7.7	Russl	Shel....	Univ...	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w.	Lvine..
Bethlehem.....	2½	1775	144	s.	34x4	34x6	NoAm	3	4-4 x4½	25.6	2	l.	..	t.	s	Bring..	h	.....	cnt	d-shft	Pierce.	1100	15	Schblr.	g.	s.	d.	Dtroit..	Dtroit..	selec	unt-m.	3	8.4	Russl	Shel....	Univ...	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w.	Lvine .
Bethlehem....Tractor	5	2565	120	s.	34x4	34x6	NoAm	3	4-4 x4½	25.6	2	l.	..	t.	s	Bring..	h	.....	cnt	d-shft	Pierce.	1100	15	Schblr.	g.	s.	d..	Dtroit..	Dtroit..	selec	unt-m.	3	9.4	Russl	Shel....	Univ...	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w.	Lvine..
Blair.....C	2	2850	121*	s.	34x4	34x3½d	Wauk.	3	4-4½x5½	29 0	2	l.	..	p	d	Bosch.	f..	Eismn....	cnt	motor.	Wauk..	1060	14	Zenith..	g.	s.	c.	Wabash	own....	id-c.	amid..	3	7 6	Kestone	Sheldon	Ther...	worm	sub-f .	sub-f.	int-r-w	ext-sht.	Lvine..
Blair.....D	3	3250	121*	s.	36x5d	36x5d	Wauk.	3	4-4½x5½	29 0	2	l.	..	p	d	Bosch.	f..	Eismn....	cnt	motor	Wauk..	970	12	Zenith..	g.	s.	c.	Wabash	own..	id-c.	amid..	3	8 6	Kestone	Sheldon	Ther..	worm	sub-f..	sub-f.	int-r-w	ext-sht.	Lvine..
Blair.....F	5	4250	144*	s.	36x6	36x6d	Wauk.	3	4-4½x6½	32.4	2	l.	..	p.	d	Bosch.	a	Eismn....	cnt	motor	Wauk	870	10	Zenith..	g.	s.	c.	Wabash	own...	id-c.	amid..	3	9.3	Kestone	Sheldon	Ther...	worm	sub-f..	sub-f	int-r-w	ext-sht.	Lvine..
Bourne Magnetic..VM	2	3500	143	s.	36x4	36x8	Hercl.	5	4-4 x5½	25.6	1	l.	..	p.	s	Eismn.	f..	s, l Ents..	cnt	motor	Simplx	1280	15	Zenith..	g.	s.	....	Ents..	Ents....	....	unt-m.	..	8 50	Timkn	Mthr .	Blood.	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Ross...
Bourne Magnetic..XM	3½	4200	160	s.	36x5	36x10	Hercl.	5	4-4½x5½	29.0	1	l.	..	p.	s.	Eismn..	f..	s, l Ents..	cnt	motor	Simplx	1100	12	Zenith..	g.	s.	....	Ents..	Ents....	....	unt-m.	..	10 3	Timkn	Mthr..	Blood..	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Ross...
Brinton.....H	1	1250	125	p.	33x4½	33x4½	Wis...	2	4-3½x5	16.9	4	l.	..	p.	s.	.....	f..	l.....	.....	.....	None....	.....	...	.....	h.	s.	dd	.....	.....	selec	unt-m.	3	6.2	.....	.....	.....	worm	.....	sprgs..	int-f-w	int-r-w.	.....
Brinton.....F	2½	2650	140	s.	36x4*	36x6*	Cont.	3	4-4½x5½	27.2	4	l.	..	p.	s	Bosch.	f..	l.....	cnt.	motor.	Pierce..	.....	...	.....	g.	s.	dd.	.....	.....	selec	unt-m.	3	7.75	.....	.....	own....	worm	sprgs..	sprgs.	ext-r-w.	int-r-w.	.....
Briscoe.....4-24	½	825	104	p.	31x4	31x4	own...	2	4-3½x5½	16.3	4	l.	..	t.	s.	Conn..	h	s, IA-Lite.	....	.....	.....	.....	...	DBuick	g.	d.	c.	own....	own....	selec	unt-x..	3	4.2	own....	.....	own...	bevel.	t-arm	t-arm	int-r-w	ext-r-w.	own....
Briscoe.....T-24	1	1000	132	ps	31x4	34x3½	own...	2	4-3½x5½	16.3	4	l.	..	t.	s.	Conn..	h	s, l A-Lite.	....	.....	.....	.....	...	DBuick	g.	d.	c.	own....	own....	selec	unt-j-s	3	9.0	own....	.....	own...	chain..	rad-rd.	tor-a..	int-r-w	ext-j-s.	own....
Brockway.....J-2	1½	2450	140	s.	36x3½	36x5	Cont..	3	4-3½x5	22.5	4	l.	..	t.	s.	Eismn.	f..	.....	suc.	motor.	Mnrch.	1200	15	Schblr..	g.	s.	c.	Hart...	B-Lipe.	selec	amid..	3	8.6	Sheldon	Merrill.	Spicer..	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Gemr..
Brockway.....K-3	2	2850	148	s.	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Eismn.	f..	.....	suc.	motor.	Mnrch.	1200	15	Schblr..	g.	s.	c.	Hart...	B-Lipe.	selec	amid..	3	8.5	Timkn.	Merrill.	Spicer..	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Gemr..
Brockway.....R	3½	3750	164	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l.	..	p.	s.	Eismn..	h.	l.....	suc.	motor.	Mnrch.	1100	12	Schblr..	g.	s.	dd	B-Lipe.	B-Lipe.	selec	amid..	3	10.5	Timkn.	Merrill.	Spicer..	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Gemr..
Buick.....	½	790	106	..	31x4	31x4	own...	..	4-3½x4½	18.2	4	l.	..	p.	s.	Delco..	h.	s, l Delco.	....	.....	.....	.....	...	Marvel.	v.	..	dd	own....	own....	selec	unt-m.	..	4.08	Timkn.	.....	.....	bevel.	.....	.....	int-r-w	ext-r-w.	.....
Chase.....A	1	1725	138	s.	36x3½	36x5	Wauk.	3	4-3½x5½	19.6	4	..	..	p.	s.	Bosch..	f..	.....	cnt.	motor.	Mnrch.	1200	18	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.2	Sheldon	Perf....	.....	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Lvine..
Chase.....C	1½	2025	149	s.	36x3½	36x6	Wauk.	3	4-3½x5½	19.6	4	..	..	p.	s.	Bosch..	f..	.....	suc.	motor.	Mnrch.	1000	16	Stmbg..	g.	..	dp	B&Bek.	Cotta..	selec	unt-m.	3	8.6	Sheldon	Perf....	.....	worm	sprgs..	sprgs.	int-r-w.	ext-r-w.	Lvine..
Chase.....B	2½	2475	160	s.	36x4	36x4d	Buda..	3	4-4½x5½	27.2	4	..	..	p.	s.	Bosch..	f..	.....	suc.	motor.	Mnrch.	1000	14	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.66	Sheldon	Perf....	.....	worm	sprgs..	sprgs.	int-r-w.	ext-r-w.	Lvine..
Chase.....X	3	2800	160	s.	36x4	36x5d	Buda..	3	4-4½x5½	27.2	4	..	..	p.	s.	Bosch..	f..	.....	suc.	motor.	Mnrch	1000	12	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m	3	9.25	Slsby...	Perf....	.....	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Lvine..
Chase.....O	3½	3600	175	s.	36x5	36x5d	Cont*.	3	4-4½x5½	32.4	2	l.	..	p.	s.	Bosch..	h.	s, IDynto..	suc..	motor.	Mnrch.	1000	12	Stmbg..	g.	s.	d..	B-Lipe.	B-Lipe.	selec	unt-m	4	8.75	Sheldon	Perf....	.....	worm	sprgs..	t-arm.	ext-r-w.	ext-r-w.	Lvine..
Chevrolet.....	1	1125	125	ps	31x4	32x4	.....	3	4-3½x5½	21.7	4	..	..	..	s.	Remy..	..	s, IA-Lite.	suc..	.....	Mnrch	....	25	Zenith..	g.	s.	c.	.....	.....	selec	unt-m.	3	7.0	.....	.....	.....	worm	sprgs.	sprgs.	.....	.....	.....

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TRUCKS—Continued

Name and Model	Tons Capacity	TIRES: Sizes in Ins. Front	TIRES: Sizes in Ins. Rear	TIRES: Kind	Price of Chassis	Wheelbase in Inches	MOTOR: Make Engine	MOTOR: No. of Crankshaft Bearings	MOTOR: Cylinders Bore and Stroke	MOTOR: S. A. E. Hp.	MOTOR: Cylinder Cast	MOTOR: Valves Placed	MOTOR: Spark Plug	MOTOR: Cooling—Water Circulation	MOTOR: IGNITION Type	MOTOR: IGNITION Make	MOTOR: IGNITION Spark Advance	MOTOR: Electric System—Type and Make	MOTOR: GOVERNOR Type	MOTOR: GOVERNOR Drive	MOTOR: GOVERNOR Make	MOTOR: SPEED Motor in r. p. m.	MOTOR: SPEED Truck in m.p.h.	MOTOR: FUEL SYS. Carburetor Make	MOTOR: FUEL SYS. Fuel Feed	MOTOR: FUEL SYS. Tank Location	TRANSMISSION: CLUTCH Type	TRANSMISSION: CLUTCH Make	TRANSMISSION: GEARSET Make	TRANSMISSION: GEARSET Type	TRANSMISSION: GEARSET Location	TRANSMISSION: GEARSET Speeds	TRANSMISSION: Total Gear Reduction in High	TRANSMISSION: Rear Axle	TRANSMISSION: Springs, Make	TRANSMISSION: Universals, Make	TRANSMISSION: Final Drive	TRANSMISSION: Propulsion Taken By	TRANSMISSION: Torque Taken By	BRAKES: Hand Brake	BRAKES: Foot Brake	Steering Gear
Garford	3½	30x5	40x5d		3000	128*	Wis	4	4-4½x6	29.0	4 L.			p. d.		Eisman	h.	s, IWest			Stmbg*	1375	18		dd.		B-Lipe.	selec amid.	4	10.3		Perf	Spicer	worm	rad-rd.	sprgs.	ext-bt.	ext-r-w.	Ross.
Garford	5	30x6	40x6d		4700	128*	Wis	4	4-4½x5½	36.1	2 t.			p. s.		Eisman	h.	West			Stmbg*	1300	16		dd.		B-Lipe.	selec unt-j.	4	13.3		Perf	Spicer	d-chn	rad-rd.		int-r-w.	ext-sht.	Ross.
Garford	6	30x7d	40x7d		4900	128*	Wis	3	4-5½x5½	41.6	2 t.			p. s.		Eisman	h.	West			Stmbg*	1250	16		dd.		B-Lipe.	selec unt-j.	4	13.3		Perf	Spicer	d-chn	rad-rd.		int-r-w.	int-sht.	Ross.
Garford Tractor	4½	36x4	36x4d		3100	116	Buda	4	4-4½x5½	29.0	4 L.			p. s.		Dixie	h.	West			Stmbg*	1250	16		dd.		B-Lipe.	selec amid.	4	9.25	Timkn.	Perf	Spicer	worm	rad-rd.	sprgs.	int-r-w.	int-sht.	Ross.
Garford Tractor	7	40x5d	40x5d		4000	105	Wis	3	4-4½x5½	36.1	2 t.			p. d.		Eisman	h.	West			Mrch	1190			dd.		B-Lipe.	selec amid.	4	12.0	Timkn.	Perf	Spicer	worm	rad-rd.	sprgs.	ext-sht.	int-r-w.	Ross.
Garford Tractor	10	40x6	40x6d		4800	102	Wis	3	4-5½x5½	41.6	2 t.			p. d.		Eisman	h.	West			own	1041		Rayfd	dd.		B-Lipe.	selec unt-j.	4	13.3	own	Perf	Spicer	d-chn	rad-rd.	sprgs.	int-r-w.	ext-sht.	Ross.
Gary	F	30x3½	36x4			130	s.	Buda*	3	4-3½x5½	22.5	4 L.		t. s.		Eisman	f.	Vesta*	sue	motor	Mrch	1275	15	Stmbg*	dd.		Fuller	selec unt-m.	3	7.8	Sheldon	Tuthill	Blood	worm	sprgs.	int-r-w.	Ross.
Gary	G	30x3½	36x5			144	s.	Buda	3	4-4½x5½	28.9	4 L.		p. s.		Eisman	f.	Vesta	sue	motor	Simplex	1275	15	Stmbg*	dd.		Fuller	selec unt-m.	3	7.75	Sheldon	Tuthill	Blood	worm	sprgs.	int-r-w.	Ross.
Gary	H	30x4	36x6			156	s.	Buda	3	4-4½x5½	28.9	4 L.		p. s.		Eisman	f.	Vesta	sue	motor	Simplex	1275	15	Stmbg*	dd.		Fuller	selec unt-m.	3	8.75	Sheldon	Tuthill	Blood	worm	sprgs.	int-r-w.	Ross.
Gary	HU	30x4	36x7			162	s.	Buda	3	4-4½x5½	28.9	4 L.		p. s.		Eisman	h.	Vesta	sue	motor	Simplex	1275	15	Stmbg*	dd.		Fuller	selec unt-m.	3	8.75	Sheldon	Tuthill	Hart	worm	sprgs.	int-r-w.	Lvine.
Gary	K	30x5d	30x5d			162	s.	Buda	3	4-4½x6	32.4	4 L.		p. s.		Eisman	a.	Vesta	cnt	duplex	Duplex	1200	12	Stmbg*	dd.		Fuller	selec amid.	3	8.75	Sheldon	Tuthill	Hart	worm	sprgs.	int-r-w.	Lvine.
G. A. Schacht	2	30x3½	30x6		2950	141	s.	Buda	3	4-4½x5½	29.0	4 L.		p. s.		Bosch	h.		cnt	motor		1200	18	Stmbg*	dd.		Warner	selec amid.	3	7.75	Sheldon	Tuthill	Blood	worm	sprgs.	int-r-w.	Lvine.
G. A. Schacht	2½	30x4	30x4d		3300	156	s.	Buda	3	4-4½x5½	29.0	4 L.		p. s.		Bosch	h.		cnt	motor		1385	20	Stmbr	dd.		Hart	selec amid.	3	8.5	own	Nail	Blood	worm	rad-rd.	t-arm	ext-r-w.	Barns.
G. A. Schacht	3½	30x5d	30x6d		3700	168*	s.	Buda	3	4-4½x5½	29.0	4 L.		p.		Bosch	h.		cnt	motor		1200	16	Schblr.	dd.		Hart	selec amid.	3	10.3	own	Nail	Blood	worm	rad-rd.	t-arm	ext-r-w.	Barns.
G. A. Schacht	5	40x6	40x6d		4700	168	s.	Buda	3	4-5½x5½	41.6	2 t.		p.		Bosch	h.		cnt	motor		1050	12	Schblr.	dd.		Hart	selec amid.	3	14.0	own	Nail	Blood	worm	rad-rd.	t-arm	int-r-w.	Barns.
Gem	J	31x4	31x4		675	96	p.	GB&S	3	4-3½x4½	22.5	4 L.		t. s.		Conn	h.	s, IDyato			Carter			Carter	dd.		G-Lees	selec unt-m.	3	7.0	Torbn	Cooper	Arvac	int-g.	sprgs.	int-r-w.	ext-r-w.	Lvine.
Geneva	A	30x2½	34x4		1425	132	s.	Beavr.	2	2-3½x4½	22.1	4 L.		t. s.		Simms	f.	None			Schblr.	1200	18	Schblr.	dp.		B&Bek.	plan unt-j.	2	4.0	Sheldon	Spicer	d-chn	rad-rd.	sprgs.	int-r-w.	ext-r-w.	Foste.
Globe	B	34x3½	36x5		1750	144	s.	Cont.	3	4-3½x5½	22.5	4 L.		p. s.		Eisman	f.	None			Master	1300	18	Master	dd.		B&Bek.	selec unt-m.	3	7.0	Clark	Sheldon	Univ.	int-g.	sprgs.	int-r-w.	ext-r-w.	Lvine.
Globe	C	36x3½	36x6		2050	154	s.	Cont.	3	4-3½x5½	27.2	4 L.		p. s.		Eisman	h.	None			Master	1250	16	Master	dd.		B&Bek.	Covert.	3	7.5	Rusel	Sheldon	Univ.	int-g.	sprgs.	int-r-w.	ext-r-w.	Lvine.
G.M.C	16	35x5	35x5		1495	132	p.	Cont.	3	4-3½x5	27.2	4 L.		p. s.		Eisman	h.	None			Master	1250	16	Master	dd.		B&Bek.	Covert.	3	8.0	Clark	Sheldon	Univ.	int-g.	sprgs.	int-r-w.	ext-r-w.	Lvine.
G.M.C	21	34x5	34x5		1950	136	s.	Cont.	3	4-3½x5	22.5	4 L.		p. s.		Eisman	h.		sue	motor	Mrch	1200	20	Marvel	dd.		own	own	3	6.0	W Mott	Dirt	Univ	bevel	rad-rd.	sprgs.	ext-r-w.	Jacox.
G.M.C	31	36x5	36x5		2350	144*	s.	Cont.	3	4-3½x5½	22.5	4 L.		p. s.		Eisman	h.		sue	motor	Mrch	1380	18	Marvel	dd.		own	own	3	7.7	Timkn	Dirt	Univ	worm	rad-rd.	sprgs.	int-r-w.	Lvine.
G.M.C	41	36x4d	36x4d		2690	158*	s.	Cont.	3	4-4½x5½	27.2	4 L.		p. s.		Eisman	h.		sue	motor	Mrch	1300	15	Marvel	dd.		own	own	4	9.2	TDB	Dirt	Univ	worm	rad-rd.	sprgs.	int-r-w.	Lvine.
G.M.C	71	36x5	40x5d		3750	162*	s.	Cont.	3	4-4½x5½	32.4	4 L.		p. s.		Eisman	h.		sue	motor	Mrch	1200	14	Marvel	dd.		own	own	4	9.2	TDB	Dirt	Univ	worm	rad-rd.	sprgs.	int-r-w.	Lvine.
G.M.C	101	36x6	40x6d		4350	168*	s.	Cont.	3	4-4½x5½	32.4	2 L.		p. s.		Eisman	h.		sue	motor	Mrch	1210	10	Marvel	dd.		own	own	4	12.0	TDB	Dirt	Univ	worm	rad-rd.	sprgs.	int-r-w.	Lvine.
Gramm-Bernstein	1½	34x3½	36x5		2450	130*	s.	Wauk	3	4-3½x5½	22.5	4 L.		p. s.		Eisman	h.	s, I* West	cnt	motor	Wauk	1200	17	Zenith	dd.		own	id-c. amid.	3	7.75	Sheldon	Sheldon		worm	sprgs.	int-r-w.	ext-r-w.	Ross.
Gramm-Bernstein	2	34x3½d	34x5		2750	146	s.	Wauk	3	4-3½x5½	22.5	4 L.		p. s.		Eisman	h.	s, I* West	cnt	motor	Wauk	1200	16	Zenith	dd.		own	id-c. amid.	3	8.6	Sheldon	Sheldon		worm	sprgs.	int-r-w.	ext-r-w.	Ross.
Gramm-Bernstein	2½	36x4	36x4d		3300	156	s.	Wauk	3	4-4½x5½	29.0	2 L.		p. d.		Eisman	h.	s, I* West	cnt	motor	Wauk	1150	16	Zenith	dd.		own	id-c. amid.	3	7.7	Sheldon	Sheldon		worm	sprgs.	int-r-w.	ext-r-w.	Ross.
Gramm-Bernstein	3½	40x5d	40x5d		4000	158*	s.	Wauk	3	4-4½x5½	32.4	2 L.		p. d.		Eisman	h.	s, I* West	cnt	motor	Wauk	1150	16	Zenith	dd.		own	id-c. amid.	3	8.7	Sheldon	Sheldon		worm	sprgs.	int-r-w.	ext-r-w.	Ross.
Gramm-Bernstein	5	40x6	40x6d		5000	168*	s.	Wauk	3	4-4½x6	36.1	2 L.		p. d.		Eisman	h.	s, I* West	cnt	motor	Wauk	1100	16	Zenith	dd.		own	id-c. amid.	4	10.2	Sheldon	Sheldon		worm	sprgs.	int-r-w.	ext-r-w.	Ross.
Grant	2	34x6	34x6		1850	124	s.	Cont.	3	4-3½x5	22.5	4 L.		t. s.		Dixie		s s Remy	cnt	d-shft.	Pierce.	1400	14	Stewart	dp.		B&Bek.	G-Lees	selec unt-m.	3	7.0	Torbn	Cooper	Arvac	int-g.	sprgs.	int-r-w.	ext-r-w.	Lvine.
Grant	15	34x4			1950	140																																				
Grant	10	34x4½	34x5		1540	124	ps																																			
Grant	11	34x4½*			1635	140		Cont.	3	4-3½x5	22.5	4 L.		t. s.		Dixie		s, I Remy	cnt	d-shft.	Pierce.	1400	20	Stewart	dp.		B&Bek.	G-Lees	selec unt-m.	3	7.0	Torbn	Cooper	Arvac	int-g.	sprgs.	int-r-w.	ext-r-w.	Lvine.
Grant	12	32x4	32x4		1075	115	p.	HerSp	2	4-3½x5	16.9	4 L.		t. s.		Dixie		s, I Bijur			none			Carter	dp.		B&Bek.	G-Lees	selec unt-m.	3	5.3	Torbn	Cooper	Arvac	int-g.	sprgs.	int-r-w.	ext-r-w.	Lvine.
Hahn	1	30x3	30x3		1100	120*	s.	Cont.	3	4-3½x5	19.6	4 L.		t. s.		Eisman	h.		cnt	motor	Pierce.	1175	18	Stmbg	dd.		B-Lipe.	B-Lipe.	selec unt-m.	3	7.0	Torbn	Cooper	Spicer	int-g.	sprgs.	int-r-w.	ext-r-w.	Diwlr.
Hahn	1½	30x3½	30x3½		1950	144*	s.	Cont.	3	4-3½x5	19.6	4 L.		p. d.		Eisman	h.		cnt	motor	Pierce.	980	15	Stmbg	dd.		B-Lipe.	B-Lipe.	selec unt-m.	3	7.0	Timkn	Spicer	Spicer	worm	rad-rd.	t-arm		Ross.
Hahn	3½	30x5	30x5d		2900	148*	s.	Cont.	3	4-4½x5½	32.4			p. s.		Bosch	h.								dd.		B-Lipe.	B-Lipe.	selec unt-m.	3	7.0	Timkn	Spicer	Spicer	worm	rad-rd.	t-arm		Ross.
Hall	2	36x4	36x4d		2350	144	s.	Cont.	3	4-4½x5½	27.2	4 L.		p. s.		Bosch*	f.	l, Bosch	sue	motor	March	1250	18	Zenith	dd.		B&Bek.	Covert.	selec unt-m.	3	9.2	Timkn	Dirt	K-B	worm	sprgs.	int-r-w.	int-r-w.	Gemr.
Hall	3½	30x5	30x5d		3250	144	s.	Cont.	3	4-4½x5½	32.4	2 L.		p. s.		Bosch*	f.	l, Bosch	sue	motor	March*	1200	15	Zenith	dd.		B&Bek.	B-Lipe.	selec unt-m.	3	10.5	Timkn	Dirt	K-B	worm*	sprgs*	int-r-w.	int-r-w.	Gemr.
Hall	5	30x5	40x6d		4200	144	s.	Cont.	3	4-4½x5½	32.4	2 L.		p. s.		Bosch*	f.	l, Bosch*	sue	motor	March*	1200	12	Zenith	dd.		B-Lipe.	B-Lipe.	selec unt-m.	4	12.0	Timkn	Dirt	K-B	worm)	sprgs.	sprgs.	int-r-w.	Gemr.
Harvey	WFA	36x4	36x7		2850	150	s.	Buda	3	4-4½x5½	29.0	4 L.		p. s.		Eisman	a.	s, IWest	cnt	motor	Duplex	1000	16	Stmbg	dp.		B&Bek.	B-Lipe.	selec amid.	4	7.75	Sheldon	Spicer	Spicer	worm	sprgs.	sprgs.	int-r-w.	Ross.
Harvey	WHA	36x5	36x5d		3850	160*	s.	Buda	3	4-4½x6	32.4	4 L.		p. s.		Eisman	a.	s, IWest	cnt	motor	Duplex	1000	13	Stmbg	dp.		B&Bek.	B-Lipe.	selec amid.	4	8.75	Sheldon	Spicer	Spicer	worm	sprgs.	sprgs.	int-r-w.	Ross.
Harvey	WKA	36x6	36x6d		4600	160*	s.	Buda	3	4-4½x6	32.4	4 L.		p. s.		Eisman	a.	s, IWest	cnt	motor	Duplex	1000	11	Stmbg	dp.		B&Bek.	B-Lipe.	selec amid.	4	8.75	Sheldon	Spicer	Spicer	worm	sprgs.	sprgs.	int-r-w.	Ross.
Harvey Tractor	HT	36x5	36x5d		4000	125	s.	Buda	3	4-4½x6	32.4	4 L.		p. s.		Eisman	a.	s, IWest	cnt	motor	Duplex	1000	11	Stmbg	dp.		B&Bek.	B-Lipe.	selec amid.	4	8.75	Sheldon	Spicer	Spicer	worm	sprgs.	sprgs.	int-r-w.	Ross.
Hawkeye	J	34x5	34x5		1750	136*	s.	Buda	3	4-3½x5½	22.5	4		p. s.		Eisman	h.	s, I West*	cnt	motor	Duplex	1050	15	Stmbg	dp.		B&Bek.	B-Lipe.	selec unt-m.	4	8.75	Sheldon	Spicer	Spicer	worm	sprgs.	sprgs.	int-r-w.	Ross.
Hawkeye	L	34x4	34x6			148	s.	Buda	3	4-3½x5½	22.5			p. s.		Eisman			cnt	motor	Duplex	1500	15	Master	dp.		B&Bek.	B-Lipe.	selec unt-m.	3	7.00	Clark	Tuthill	Univ	int-g.	sprgs.	int-r-w.	ext-r-w.	Lvine.
Hendrickson	G	36x4	36x4				s.	Wauk	2	4-4½x5½	29.0	2		p. s.		Dixie	h.		sue	motor	Wauk	1000	15	Stmbg	dd.		Fuller	Fuller	unt-m.	3	7.75	Timkn	Tuthill		worm	sprgs.	tor-a.	ext-r-w.	Ross.
Hendrickson	H	30x5	30x5d		3000		s.	Wauk	2	4-4½x5½	32.4	2		p. s.		Dixie	h.		cnt	motor	Wauk	1100	14	Stmbg	dd.		B&Bek.	B-Lipe.	unt-m.	3	10.3	Timkn	Tuthill		worm	sprgs.	tor-a.	ext-r-w.	Ross.
Hercules		34x4	36x5d		2800	150	s.	Cont.	3	6-3½x5½	29.4	6		p. s.		Dixie	f.	s, I West	sue	motor	Simplex	1100	16	Rayfd	dd.		B-Lipe.	B-Lipe.	selec unt-m.	3	9¼	own	M-Eva		worm	rad-rd.	sprgs.	int-r-w.	Lvine.
Hercules		34x4	36x5d		3350	160	s.	Cont.	3	6-3½x5½	29.4	6		p. s.		Dixie	f.	s, I West	sue	motor	March	1100	14	Rayfd	dd.		B-Lipe.	B-Lipe.	selec unt-m.	3	9¼	own	Tuthill		worm	rad-rd.	sprgs.	int-r-w.	Ross.
Hercules	4	36x5	40x5d		4000	160	s.	Cont.	3	6-3½x5½	33.7	6		p. s.		Dixie	f.	s, I West	sue	motor	March	1100	14	Rayfd	dd.		B-Lipe.	B-Lipe.	selec unt-m.	3	11¼	own	Tuthill		worm	rad-rd.	sprgs.	int-r-w.	int-sht.	Ross.
Hercules	5	36x5	40x6d		4750	168	s.	Cont.	3	6-3½x5½	33.7	6		p. s.		Dixie	f.	s, I West	sue	motor	March	1100	13	Rayfd	dd.		B-Lipe.	B-Lipe.	selec unt-m.	3	11¼	own	Spicer		worm	rad-rd.	sprgs.	int-r-w.	int-sht.	Ross.
Hercules	6	36x6	40x6d		5500	168	s.	Cont.	3	6-3½x6	36.1	6		p. s.		Dixie	f.	s, I West	sue	motor	March	1100	12	Rayfd	dd.		B-Lipe.	B-Lipe.	selec unt-m.	3	12¼	own	Spicer		worm	rad-rd.	sprgs.	int-r-w.	int-sht.	Ross.
Highway Truktor	A	36x4	36x4			93	s.	Cont.	3	4-3½x5	22.5	4		p. s.		Dixie	h.		sue	motor	Simplex		10	Rayfd	dd.		B&Bek.	B-Lipe.	selec unt-m.	2	13.4	own	Spicer		unt-g.	tor-a.	ext-r-w.	ext-r-w.	Ross.
Higrade	A-18	35x5	35x5		1800	115	p.	Cont.	3	4-3½x5	19.6	4 L.		t.		Simms	h.	s, I Le-Nv			Simplex		20	Zenith	dd.		Fuller	Fuller	id-cl	unt-m.	3	4.56	Sheldon			worm	sprgs.	tor-a.	int-r-w.	own.
Hoover		33x4½	33x4½		1350	120	p.	Cont.	3	4-3½x5	19.6	4 L.		t.		Dixie	h.	None			None		25	Zenith	dd.		Fuller	Fuller	selec unt-m.	3	4.56	Seldn	Acme		worm	sprgs.	tor-a.	ext-r-w.	Lvine.
Horner		36x4	36x4		2600	145	s.	Cont.	3	4-4½x5½	27.2	4		p. d.		Bosch	h.		cnt	motor	March	1200	16		dd.		B-Lipe.	B-Lipe.	selec unt-m.	3	6.2	Sheldon	Spicer	Spicer	worm	rad-rd.	sprgs.	int-r-w.	Lvine.
Horner		36x4	36x4d		2750	145	s.	Cont.	3	4-4½x5½	27.2	4		p. d.		Bosch	h.		cnt	motor	March	1200	16		dd.		B-Lipe.	B-Lipe.	selec unt-m.	3			Perf	Spicer	worm	rad-rd.	sprgs.	int-r-w.	Ross.
Horner		40x4d	40x4d		3550	145	s.	Cont.	3	4-4½x5½	32.4	2 L.		p. d.		Bosch	h.		cnt	motor	March	1150	12		dd.		B-Lipe.	B-Lipe.	selec unt-m.	3	9.4*	own	Perf	Spicer	worm	rad-rd.	sprgs.	int-r-w.	Ross.
Horner	5	42x6d	42x6d		4750	156	s.	Cont.	3	4-5½x5½	44.1	2 L.		p. d.		Bosch	h.		cnt	motor	March	1150	12		dd.		B-Lipe.	B-Lipe.	selec unt-m.	3	13.4	own	Perf	Spicer	worm	rad-rd.	sprgs.	int-r-w.	Ross.
Hurlburt	1½	34x5	34x5		2600	136*	s.	Buda	3	4-3½x5½	22.5	4 L.		p. s.		Eisman	h.	s, I Vesta	cnt	motor		1375	18	Flech	dd.		B-Lipe.	B-Lipe.	selec unt-m.	3	6.25	own	Merl		worm	sprgs.	sprgs.	int-r-w.	ext-r-w.	Ross.
Hurlburt	2	36x4d	36x4d		3500	148*	s.	Buda	3	4-4½x5½	29.0	4 L.		p. d.		Eisman	h.	s, I Vesta	cnt	motor		1300	16	Flech	dd.		B-Lipe.	B-Lipe.	selec unt-m.	3	8.6	own	Merl		worm	sprgs.	sprgs.	int-r-w.	t-arm	Ross.
Hurlburt	3½	36x5	36x5		4150	156*	s.	Buda	3	4-4½x6	32.4	4 L.		p. d.		Eisman	h.	s, I Vesta	cnt	motor		1050	13	Flech	dd.		B-Lipe.	B-Lipe.	selec unt-m.	3	8.6	own	Merl		worm	rad-rd.	t-arm	int-r-w.	ext-sht.	Ross.
Hurlburt	5	36x5	40x6d		5000	156*	s.	Buda	4	6-3½x5½	33.7	6 L.		p. d.		Eisman	h.	s, I Vesta	cnt	motor		1050	13	Flech	dd.		B-Lipe.	B-Lipe.	selec unt-m.	3	8.6	own	Merl		worm	rad-rd.	t-arm	int-r-w.	ext-sht.	Ross.
Hurlburt	7	36x6	40x7d		6500	156*	s.	Buda	4	6-3½x6	33.7	6 L.		p. d.		Eisman	h.	s, I Vesta	cnt	motor		1050	13	Flech	dd.		B-Lipe.	B-Lipe.	selec unt-m.	3	8.6	own	Merl		worm	rad-rd.	t-arm	int-r-w.	ext-sht.	Ross.
Independent	F	36x3*	36x4*		1385	128*	s*	Buda	3	4-3½x5	19.6	4		p.		Eisman	f.	s, I Vesta	cnt	motor		1360	12	Flech	dd.		B-Lipe.	B-Lipe.	selec unt-m.	3	10.3	own	Merl		worm	rad-rd.	t-arm	int-r-w.	ext-sht.	Ross.
Independent	G	36x3½	36x5		1850	144	s.	Buda	3	4-3½x5	19.6	4		p.		Eisman	f.	s, I Vesta	cnt	motor		1360	12	Flech	dd.		B-Lipe.	B-Lipe.	selec unt-m.	4	13.0	own	Merl		worm	rad-rd.	t-arm	int-r-w.	ext-sht.	Ross.
								Cont.	4	4-4½x5½	27.2	4		p.		Eisman	f.	s, I Jesco	sue	motor	March	1350		Marvel	dd.				selec unt-m.	3					worm	sprgs.	sprgs.	int-r-w.	ext-sht.	Lvine

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TRUCKS—Continued

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in inches	TIRES: Kind	TIRES: Sizes in Ins. Front	TIRES: Sizes in Ins. Rear	MOTOR: Make Engine	No. of Crankshaft Bearings	Cylinders Bore and Stroke	S. A. E. Hp.	Cylinders Cast	Valves Placed	Spark Plug	Cooling—Water Circulation	IGNITION: Type	IGNITION: Make	IGNITION: Spark Advance	Electric System—Type and Make	GOVERNOR: Type	GOVERNOR: Drive	GOVERNOR: Make	SPEED: Motor in r.p.m.	SPEED: Truck in m.p.h.	FUEL SYS.: Carbureter Make	FUEL SYS.: Fuel Feed	FUEL SYS.: Tank Location	CLUTCH: Type	CLUTCH: Make	GEARSET: Make	GEARSET: Type	GEARSET: Location	Speeds	Total Gear Reduction in High	Rear Axle	Springs, Make	Universals, Make	Final Drive	Propulsion Taken By	Torque Taken By	BRAKES: Hand Brake	BRAKES: Foot Brake	Steering Gear
Menominee.....H	1½	2190	144*	s.	36x3½	36x5	Cont..	3	4-3½x5½	22.5	4	l..	..	p.	s.	Eismn..	h.	.....	cnt.	d-shft.	opt....	800	15	Stmbg..	g.	s	id.	B-Lipe.	B-Lipe.	selec	unt-m.	3	9.25	Timkn.	Tuthill.	Spicer..	worm	rad-rd	sprgs.	int-r-w.	int-r-w.	Gemr..
Menominee.....D	2	2615	144*	s.	36x4	36x6*	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	s.	Eismn..	h.	.....	cnt.	d-shft.	opt....	750	14	Stmbg..	g.	s	id.	B-Lipe.	B-Lipe.	selec	unt-m.	3	9.25	Timkn.	Tuthill.	Spicer..	worm	rad-rd	sprgs.	int-r-w.	int-r-w.	Gemr..
Menominee.....G	3½	3580	160*	s.	36x5	36x5d	Cont..	3	4-4½x5½	32 4	2	l..	..	p.	s.	Eismn..	h.	.....	....	.....	opt....	750	12	Stmbg..	g.	s	lp.	B&Bek.	Cotta.	selec	amid.	3	10.3	Timkn.	Titanic.	Spicer..	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Gemr..
Menominee..... J	5	4540	160	..	36x6	40x6d	Wis...	..	4-3½x5½	22.5	..	l.	..	p.	..	Eismn..	..	.....	....	.....	opt....	.....	...	Stmbg..	g.	s.	dp.	B&Bek.	Cotta.	id-e.	amid.	3	14.4	Timkn.	Titanic.	Acme..	worm	rad-rd.	sprgs.	.....	.....	Gemr..
Modern.....30	...	1800	132	s.	34x3½	34x5	Cont..	..	4-3½x5	22.5	4	..	..	p.	d.	x.....	f..	.....	....	.....	opt....	.....	...	Zenith..	..	..	id.	Fuller..	Fuller.	selec	unt-m.	3	....	Timkn.	.....	.....	worm	rad-rd.	sprgs.	ext-r-w.	ext-r-w.	Ross...
Moreland.....17–N	1	2050	126	s.	34x3½	34x4	Cont..	3	4-3½x5	22.5	4	l.	..	t.	s.	Dixie...	h.	l, West...	cnt.	motor.	Pierce..	1200	19	Master*	g.	s.	id.	B-Lipe.	B-Lipe.	selec	unt-m.	3	6.0	Timkn.	own....	Ther...	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Moreland.....17–B	1½	2750	126*	s.	36x3½	36x5	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Dixie...	h.	l, West...	cnt.	motor.	Pierce.	1140	17	Master*	g.	s	id.	own....	own....	selec	amid..	4	7.0	Timkn.	own....	Ther...	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Moreland.....17–C	2½	3375	144*	s.	36x4	36x7	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Dixie...	h.	l, West...	cnt.	motor.	Pierce.	1090	16½	Master*	g.	s	dd.	own....	own....	selec	amid..	4	6.8	Timkn.	own....	Ther...	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Moreland.....17–G	4	4150	162*	s.	36x5	40x5d	Wauk.	3	4-4½x6½	36.1	2	l..	..	p.	d.	Dixie...	h.	l, West...	cnt.	motor.	Wauk..	950	14	Master*	g.	s	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	7.8	Timkn.	own....	Ther...	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Moreland.....17–J	5	5000	180*	ps	36x6	40x6d	Wauk.	3	4-4½x6½	36.1	2	l.	..	p.	d.	Dixie...	h.	l, West...	cnt.	motor.	Wauk..	950	12	Master*	g.	..	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	8.8	Timkn.	own....	Ther...	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Moon.....B	1½	1650	140*	s.	36x3½	36x5*	Cont..	3	4-3½x5½	22.5	4	l	..	p	d	Bosch..	..	.....	....	.....	none..	1800	18	Stmbg..	g.	s	c..	Hart...	Muncie	selec	unt-j.	3	....	Sheldon	.....	.....	d-chn	rad-rd.	.....	int-r-w	int-r-w	Warner
Muskegon.....20	2	2145	144	s.	36x4	36x6	Cont..	3	4-4½x5½	27.2	4	l..	..	p	s.	Eismn..	f..	l, Remy...	cnt.	motor.	Pierce.	1230	16	Stwrt	v.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	8.0	Torbn..	.....	Arvac..	int-g.	sprgs..	sprgs..	ext-r-w	int-r-w.	Lvine..
Nash.....2017	1	1495	130	s.	34x3	34x4	own...	3	4-3½x5½	22.5	4	l.	..	p.	s.	Delco...	..	s, l Bijur..	cnt.	motor.	Simplex	1345	20	Stmbg..	g.	s	dp.	B&Bek.	Dtrt...	selec	unt-m.	3	6.8	Clark..	.....	.....	int-g..	sprgs..	sprgs..	ext-sht	ext-r-w.	.....
Nash.....4017	2	3250	124*	s.	36x5	36x5	Buda..	3	4-4½x5½	29.0	4	l..	..	p.	s.	Dixie...	h.	s, l Bijur..	cnt.	motor.	Simplex	1190	15	Stmbg..	g.	s.	dp.	B&Bek.	own....	selec	amid..	3	8.5	own....	.....	.....	int-g-4	sprgs..	sprgs.	ext-sht	int-4-w.	.....
Nash.....3017	2	1875	144	s.	34x4	34x5	own...	3	4-3½x5½	22.5	4	l.	..	p	s.	Delco...	h.	s, l Bijur..	cnt.	motor.	Simplex	1290	16	Stmbg..	g.	s.	dp.	B&Bek.	own....	selec	unt-m.	3	8.1	Clfor...	.....	.....	int-g.	sprgs..	sprgs.	ext-sht	ext-r-w.	.....
Nelson & LeMoon.E1	1½	1700	opt	s.	36x3½	36x5	Cont..	3	4-3½x5½	22.5	4	l.	..	p	s.	Eismn..	h.	s, l West..	suc.	motor.	Mnrch	1100	18	Stmbg..	g.	s	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn.	Tuthill.	.....	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Lvine..
Nelson & LeMoon.E2	2	2250	opt	s.	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	d	Eismn..	h.	s, l West..	suc.	motor.	Mnrch	1100	18	Stmbg..	g.	s	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn.	Tuthill	.....	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Lvine..
Nelson & LeMoon.E3	3	2950	opt.	s.	36x5	38x5d	Cont..	3	4-4½x5½	32.4	2	l.	..	p	d	Eismn..	h.	s, l West..	suc.	motor.	Mnrch	1100	14	Stmbg..	g.	s	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.7	Timkn.	Tuthill	.....	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Lvine..
Nelson & LeMoon.E5	5	3750	opt	s.	36x6	40x6d	Buda..	3	4-4½x6	32.4	4	..	..	p	d	Eismn..	h.	s, l West..	suc.	motor.	Mnrch	1050	11	Stmbg..	g.	s	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	11.3	Timkn.	Tuthill	.....	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Lvine..
Netco.....D	2	2800	144*	s.	36x4	36x6	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	s.	Eismn..	f..	.....	....	.....	none..	1800	15	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.5	Timkn.	Perf...	Hart...	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Ross...
Netco.....H	2½	3200	168*	s.	36x4	36x7	Cont..	3	4-4½x5½	32 4	2	l.	..	p.	s	Eismn..	f..	.....	....	.....	none..	1500	15	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	4	8.5	Timkn.	Perf...	Hart...	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Ross...
New York.....M	1½	2200	144*	s.	36x3½	36x5	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Bosch..	f..	None....	cnt.	motor.	Pierce.	1400	18	Stmbg..	g.	s.	dp.	B&Bek.	Cotta	id-e.	unt-m.	3	7.7	Timkn.	.....	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	.....
New York.....N	2	2600	144	s.	36x4	36x4d	Cont.	3	4-4½x5½	27.2	..	l.	..	p.	s.	Bosch..	f..	None....	cnt.	motor.	Pierce.	1100	15	Stmbg..	g.	s.	dp.	B&Bek.	Cotta	id-e.	unt-m.	..	...	Timkn.	.....	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	.....
Niles.....B	1	1500	124	p.	35x5	35x5	Cont..	3	4-3½x5	19.6	4	l.	..	t	s.	Eismn..	h.	.....	cnt.	motor.	Pierce.	1573	25	Stmbg..	g.	s.	dd.	Covert.	Covert.	selec	unt-m.	3	6.5	Timkn.	.....	.....	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Gemr..
Niles.....E	2	2400	140*	s	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Eismn..	h.	.....	cnt.	motor.	Pierce.	1173	15	Stmbg..	g.	s.	dp.	B&Bek.	Covert.	selec	amid.	3	8.5	Timkn.	.....	.....	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Gemr..
Noble.....NW	2	2300	148	s	36x4	36x6	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Eismn..	h.	l, Remy...	cnt.	motor.	Pierce.	1300	16	Stmbg..	v	s.	dp.	B&Bek.	Cotta	id-e.	unt-m.	3	8.75	Sheldon	Kal....	Blood..	worm	sprgs..	sprgs.	int-r-w	int-r-w	Ross...
Norwalk.....	1	1350	130	p.	31x4	31x4s	Lycmg	..	4-3½x5	19.6	..	l.	..	t.	s.	Deleo...	h.	s, l Dynt...	....	.....	.....	1200	22	Carter..	..	..	dp.	.....	.....	.....	.....	3	7.0	.....	C.-C..	Univ..	worm	sprgs..	sprgs.	int-r-w	int-r-w.	C.A.S.
Norwalk.....	1½	1450	130	s.	34x3½	34x5	Lymcg	..	4-3½x5	19 6	..	l.	..	t.	s.	Delco...	h.	s, l Dynt...	....	.....	.....	1200	18	Carter..	v.	..	dp	.....	.....	.....	.....	3	7.7	.....	C.-C..	Univ..	worm	sprgs.	sprgs.	int-r-w	int-r-w	C.A.S.
Old Hickory.....M	½	875	112	p.	33x4	33x4	Lycmg	2	4-3½x5	16.9	4	l.	..	t.	s.	Conn...	h.	s, l Dynt...	....	.....	None.	960	16	Carter..	g.	s.	c.	Lycmg	G-Lees.	selec	unt-m.	3	6.0	Salsby..	Tuthill.	Own..	bevel..	tor-t..	tor-t..	int-r-w.	ext-r-w.	C.A.S..
Old Reliable.....	1½	1950	150*	s.	34x3½	36x6	Wis...	3	4-3½x5	22.5	4	l.	..	p.	s	Bosch..	h.	l.....	....	.....	.....	.....	...	Stmbg..	g.	d	dd	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.7	.....	.....	.....	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Ross...
Old Reliable.....	2	2450	150	s	34x4	36x4d	Wis...	4	4-4x6	25.6	4	l	..	p.	s	Bosch	h.	l.....	cnt.	duplx.	Duplex.	.....	...	Stmbg..	g.	d.	dd	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.7	Sheldon	.....	.....	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Ross...
Old Reliable.....	2½	2750	....	s.	34x4	36x4d	Wis...	3	4-4½x5	29)	2	t	..	p	s	Bosch	h.	.....	....	.....	.....	.....	...	Stmbg..	g.	s.	dd	.....	DSOC..	selec	unt-j.	3	....	SA&P.	.....	.....	d-chn	rad-rd.	.....	int-r-w	ext-j-s.	Ross...
Old Reliable.....	3	3250	150	s.	34x5	36x5d	Wis...	4	4-4½x6	29 0	4	l.	..	p	s.	Bosch..	h.	l.....	cnt.	duplx.	Duplex.	.....	...	Stmbg..	g.	..	dd	.....	B-Lipe.	selec	unt-m.	3	8.7	Sheldon	.....	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w.	Ross...
Old Reliable.....	4	3750	....	s.	36x5	40x5d	Wis...	3	4-4½x5½	36.1	2	t	..	p	s	Bosch	h.	l.....	cnt.	duplx.	Duplex.	.....	...	Stmbg..	g.	..	dd	.....	B-Lipe.	selec	amid.	4	8.7	Sheldon	.....	.....	worm	sprgs.	sprgs.	int-r-w	int-r-w.	Ross...
Old Reliable.....	4	3750	....	s.	36x6	36x6d	Wis...	3	4-4½x5½	36.1	2	t.	..	p	s	Bosch	h.	l.....	....	.....	.....	.....	...	Stmbg..	g.	s.	d.	DriSe.	.....	selec	amid.	3	....	.....	.....	.....	d-chn	rad-rd.	.....	ext-r-w.	int-j-s.	Ross...
Old Reliable.....	5	4500	150*	s.	36x6	36x6d	Wis...	3	4-4½x5½	36 1	2	t	..	p	s	Bosch..	h.	l.....	cnt.	duplx	Duplex	.....	...	Stmbg..	g.	s.	d.	.....	.....	selec	amid.	3	....	.....	.....	.....	d-chn	rad-rd.	.....	ext-r-w.	int-j-s.	Ross...
Old Reliable.....	7	5000	150	s.	36x6	40x7d	Wis...	3	4-5 7/8x5½	41.6	2	t	..	p	s	Bosch	h.	l.....	cnt.	duplx	Duplex	.....	...	Stmbg..	g.	..	d.	.....	.....	selec	unt-j	4	....	.....	.....	.....	d-chn	rad-rd	.....	int-r-w.	ext-j-s.	Ross...
Oneida.....A	1	2290	130	s.	36x3½	36x5	Cont..	..	4-3½x5½	22.5	4	..	..	p.	s.	Bosch..	h.	l, Bosch..	cnt.	motor	Duplex.	980	16	Stmbg..	g.	..	d.	H-Shaw	Cotta.	id-e.	amid..	3	8.7	Timkn.	Mather.	Spicer..	worm	rad-rd.	sprgs..	int-r-w.	int-r-w.	Ross...
Oneida.....B	1½	2650	130	s.	36x3½	36x5	Cont..	..	4-3½x5½	22.5	4	..	..	p.	s.	Bosch..	h.	l, Bosch..	cnt.	motor	Duplex.	1040	15	Stmbg..	g.	..	d.	H-Shaw	Cotta.	id-e.	amid..	3	9.2	Timkn.	Mather.	Spicer..	worm	rad-rd.	sprgs..	int-r-w.	int-r-w.	Ross...
Oneida.....C	2	3000	144	s.	36x4	36x4d*	Cont.	..	4-4½x5½	27.2	4	..	..	p.	s.	Bosch..	h.	l, Bosch..	cnt.	motor	Duplex.	970	14	Stmbg..	g.	..	d.	H-Shaw	Cotta.	id-e.	amid..	3	9.2	Timkn.	Mather.	Spicer..	worm	rad-rd.	sprgs..	int-r-w.	int-r-w.	Ross...
Oneida.....D	3½	3600	160	s.	36x5	36x5d	Cont.	..	4-4½x5½	32.4	2	..	..	p.	s.	Bosch..	h.	l, Bosch..	cnt.	motor.	Duplex.	1150	12	Stmbg..	g.	..	d.	H Shaw	Cotta.	id-e.	amid.	3	10.3	Timkn.	Mather.	Spicer..	worm	rad-rd.	sprgs..	int-r-w.	int-r-w.	Ross...
Overland.....Panel	...	745	104	p.	31x4	31x4	own...	2	4-3½x5	18.2	4	l..	..	t.	..	Conn...	h.	s, l A-Lite.	....	.....	none.	.....	...	Tltsn..	v.	d.	c.	own...	own....	selec	unt-x..	3	4.3	own....	.....	.....	bevel.	tor-t.	tor-t.	int-r-w	ext-r-w	own....
Overland.....Express	...	880	106	p.	33x4½	33x4½	own...	5	4-4½x4½	27.2	4	l.	..	t.	..	Conn...	h.	s, l A-Lite.	....	.....	none.	.....	...	Tltsn..	g.	s.	c.	own...	own....	selec	unt-x	3	4.4	own....	.....	.....	bevel..	tor-t.	tor-t.	int-r-w.	ext-r-w.	own....
Packard.....1–E	1	2650	126*	s.	34x3½	34x6	own...	4	4-4x5½	25.6	4	l.	..	p.	d.	Dixie...	h.	s, l Bijur.	cnt.	motor.	own...	1000	16	own....	p.	s.	dd.	own....	own....	selec	amid..	4	6.25	own....	.....	.....	worm	rad-rd.	t-arm	int-r-w.	ext-sht	own....
Packard.....1½–E	1½	3000	126*	s.	34x3½	34x3½d	own...	4	4-4x5½	25.6	4	l.	..	p.	d	Dixie...	h.	s, l Bijur.	cnt.	motor.	own...	1000	16	own....	p.	s.	dd.	own....	own....	selec	amid..	4	6.25	own....	.....	.....	worm	rad-rd.	t-arm	int-r-w.	ext-sht	own....
Packard.....2–E	2	3400	144*	s.	34x4	34x4d	own...	4	4-4x5½	25.6	4	l.	..	p.	d	Dixie...	h.	s, l Bijur.	cnt.	motor.	own...	1000	14	own....	p.	s.	dd.	own....	own....	selec	amid..	4	7.25	own....	.....	.....	worm	rad-rd.	t-arm	int-r-w.	ext-sht	own....
Packard.....3–E	3	4100	156*	s.	36x5	36x5d	own...	4	4-4½x5½	32.4	4	l.	..	p.	d	Dixie...	h.	s, l Bijur.	cnt.	motor.	own...	1000	12	own....	p.	s.	dd.	own....	own....	selec	amid..	4	9.0	own....	.....	.....	worm	rad-rd	t-arm	int-r-w.	ext-sht	own....
Packard.....4–E	4	4450	156*	s.	36x5	40x5d	own...	4	4-4½x5½	32 4	4	l.	..	p.	d.	Dixie...	h.	s, l Bijur.	cnt.	motor.	own...	1000	12	own....	p.	s.	dd.	own....	own....	selec	amid..	4	10.0	own....	.....	.....	worm	rad-rd.	t-arm	int-r-w.	ext-sht	own....
Packard.....5–E	5	5150	156	s.	36x6	40x6	own...	4	4-5 x5½	40.0	4	l.	..	p.	d.	Dixie...	..	s, l Bijur.	cnt.	motor.	own...	1000	11	own....	p.	s.	dd.	own....	own....	selec	amid..	4	10.7	own....	.....	.....	worm	rad-rd.	t-arm	int-r-w.	ext-sht	own....
Packard.....6–E	6	5400	156	s.	36x6	40x7	own...	4	4-5 x5½	40.0	4	l.	..	p.	d	Dixie...	h.	s, l Bijur.	cnt.	motor.	own...	1000	11	own....	p.	s.	dd.	own....	own....	selec	amid..	4	10.7	own....	.....	.....	worm	rad-rd.	t-arm	int-r-w.	ext-sht	own....
Packet.....	1/8	299	100	p.	28x3	28x3	Prugh.	2	4-2½x4	12.1	4	l.	..	t.	s	A.Kent.	a.	.....	....	.....	none.	1500	25	Carter..	g.	d.	..	own...	own....	fric	unt-j.	3	4.2	own....	.....	.....	d-chn	rad-rd	.....	int-r-w.	int-r-w.	own....
Palmer.....	1	1685	132½	s.	34x3½	34x4	Cont.	3	4-3½x5	22.5	4	l.	..	t.	s	Bosch..	f..	.....	....	.....	none..	....	18	Stmbg..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	....	Torbn.	.....	.....	int-g.	sprgs.	sprgs.	int-r-w.	ext-r-w.	Ross...
Palmer.....	2	2495	144	s.	36x3½	36x3½d	Cont.	3	4-4½x5½	27.2	4	l.	..	p.	s	Bosch..	f..	.....	cnt.	motor.	Pierce.	1000	15	Stmbg..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.7	Timkn	.....	.....	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Pan-American.....	2½	2250	160	s	36x4	36x6	Buda..	..	4-4½x5½	28.9	4	..	..	p.	s.	Dixie...	h.	.....	suc.	.....	.....	1100	15	Stmbg..	v.	s.	dd.	.....	.....	selec	unt-m.	3	.....	.....	.....	.....	int-g.	sprgs.	.....	int.	ext-r-w	Ross...
Panhard.....A	1	985	125	ps	32x3½	32x3½	Gray.	3	4-3½x5	19 6	4	l.	..	t.	s.	A-Lite..	h.	l, A-Lite.	....	.....	.....	1600	28	Schblr.	v	s.	dd.	Fuller.	Fuller..	selec	unt-m.	3	6.5	Torbn..	Kal....	Arvac..	int-g.	tor-t	sprgs..	int-r-w.	ext-r-w	Lvine..
Panhard.....B	1½	1185	130	s.	32x3½	32x4	Gray.	3	4-3½x5	19.6	4	l.	..	t	s.	A-Lite..	h.	l, A-Lite.	....	.....	.....	1600	22	Schblr.	v.	s.	dd.	Fuller.	Fuller..	selec	unt-m.	3	8.0	Torbn..	Kal....	Arvac.	int-g.	tor-t	sprgs..	int-r-w.	ext-r-w	Lvine..
Peerless.....TC3	3	4000	151*	s.	36x4	40x4d	own...	3	4-4½x6½	32.4	2	t	m	p	d.	Remy..	h.	.....	cnt.	motor.	own...	925	14½	Stmbg.	g.	s.	c.	own...	own....	selec	unt-j..	4	7.4	own....	.....	.....	d-chn	rad-rd.	.....	int-r-w.	ext-j-s.	own....
Peerless.....TC4	4	4150	151*	s.	36x5	40x5d	own...	3	4-4½x6½	32.4	2	t	m	p	d	Remy..	h.	.....	cnt.	motor.	own...	925	12½	Stmbg.	g.	s.	c.	own...	own....	selec	unt-j..	4	8.7	own....	.....	.....	d-chn	rad-rd.	.....	int-r-w.	ext-j-s.	own....
Peerless.....TC5	5	4700	151*	s	38x6	42x6d	own...	3	4-4½x6½	32.4	2	t	m	p	d	Remy..	h.	.....	cnt.	motor.	own...	925	11	Stmbg.	g.	s.	c.	own...	own....	selec	unt-j..	4	10.5	own....	.....	.....	d-chn	rad-rd.	.....	int-r-w.	ext-j-s.	own....
Peerless.....TC6	6	5200	151*	s.	38x7	42x7d	own...	3	4-4½x6½	32.4	2	t	m	p	d	Remy..	h.	.....	cnt.	motor.	own...	925	11	Stmbg.	g.	s.	c.	own...	own....	selec	unt-j..	4	10.5	own....	.....	.....	d-chn	rad-rd.	.....	int-r-w.	ext-j-s.	own....
Pierce-Arrow.....	2	3750	150*	s.	36x4	36x4d	own...	3	4-4x5½	25.6	2	t.	..	p.	s.	Eismn*	h.	.....	cnt.	motor.	own...	1050	16	own....	g.	s.	c.	own...	own....	selec	amid..	4	7.0	own....	.....	.....	worm	rad-rd.	t-arm	int-r-w.	ext-sht	own....
Pierce-Arrow.....	5	5500	168*	s.	36x5	40x6d	own...	3	4-4½x6	38.0	2	t.	..	p.	d.	Bosch*	h.	.....	cnt.	motor.	own...	950	14	own....	g.	s.	c.	own...	own....	selec	amid.	3	7.8	own....	.....	.....	worm	rad-rd.	t-arm	int-r-w.	ext-sht	own....
Pullmore.....	3	3650	163	s.	36x6	36x6	Buda..	..	4-4½x6	32.4	4	l.	..	p.	s.	Eismn.	h.	West....	cnt.	motor.	Pierce.	1050	12	.....	v.	s.	..	B&Bek.	Warner	selec	unt-m.	3	9.9	own....	.....	.....	bevel	rad-rd.	rad-rd.	int-r-w.	ext-d-s	Ross...
Rainier.....	½	1150	115	p.	33x4	33x4	Light..	2	4-3½x4½	16.9	4	l.	..	t.	s.	Dixie...	h.	s, l Splitd	....	.....	none..	2000	34	Zenith..	v.	s.	dp	B-Lipe.	B-Lipe.	selec	unt-m.	3	5.8	Timkn.	Perf...	Hart.	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Lvine..
Rainier.....	1½	1350	125	p*	32x4	32x4	Light..	..	4-3½x4½	16.9	4	l.	..	t.	..	Dixie...	h.	s, l Bijur	....	.....	none..	.....	...	Zenith.	v.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.2	Hayes.	Perf...	Hart..	worm	sprgs..	sprgs.	ext-r-w.	ext-r-w.	Lvine..
Rainier.....	½	1250	....	..	.....	.....	.....	..	.....	.....	..	..	..	..	..	.....	..	.....	....	.....	.....	.....	...	.....	..	..	..	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rennoc.....	2½	3250	144	..	.....	.....	.....	..	.....	.....	..	..	..	..	..	.....	..	.....	....	.....	.....	.....	...	.....	..	..	..	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rennoc Tractor.....	8	3250	116	s.	36x5	36x7	Buda..	..	4-4½x5½	27.2	4	l.	..	p.	d.	Splitdf.	h.	l, West...	cnt.	motor.	Pierce.	1200	18	Stmbg..	v.	s.	dd.	Warner	Warner	selec	amid..	4	8.6	sprgs..	Rolnd..	Hart.	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Lvine..

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TRUCKS—Continued

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES			MOTOR																										TRANSMISSION											BRAKES		Steering Gear
				Kind	Sizes in Ins. Front	Sizes in Ins. Rear	Make Engine	No. of Crankshaft Bearings	Cylinders Bore and Stroke	S. A. E. Hp.	Cylinders Cast	Valves Placed	Spark Plug	Cooling—Water Circulation	IGNITION Type	IGNITION Make	IGNITION Spark Advance	Electric System—Type and Make	GOVERNOR Type	GOVERNOR Drive	GOVERNOR Make	SPEED Motor in r.p.m.	SPEED Truck in m.p.h.	FUEL SYS. Carbureter Make	FUEL SYS. Fuel Feed	FUEL SYS. Tank Location	CLUTCH Type	CLUTCH Make	GEARSET Make	GEARSET Type	GEARSET Location	GEARSET Speeds	Total Gear Reduction in High	Rear Axle	Springs, Make	Universals, Make	Final Drive	Propulsion Taken By	Torque Taken By	Hand Brake	Foot Brake	
Titan	5	4900	156	s.	36x6	40x6d	Buda..	3	4-4½x6	32.4	4	..	..	p.	s.	Bosch..	h.	l, Bosch..	ent.	motor.	Simplex	1000	12	Stmbg..	g.	s.	dp.	B&Bek.	Cotta..	id-c.	amid.	3	11.0	Clark..	Sheldon	.....	int-g..	rad-rd.	sprgs..	int....	int....	Lvine..
Transport Tractor...N	5	2750	80	s.	34x3½	34x4d	.....	3	4-3½x5	22.5	4	L.	..	t.	s.	Bosch..	f.	.....	suc	motor.	Mnrch.	....	12	Zenith..	g.	..	dd.	.....	.....	selec	unt-m.	4	.....	.....	.....	.....	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	.....
Triangle.....A	1½	2185	144	s.	34x3½	34x6	Wauk.	..	4-3½x5½	22.5	4	..	..	p.	s.	Eismn..	f.	.....	ent.	motor.	Wauk..	1200	15	Stmbg..	g.	..	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.0	Clark..	.....	.....	int-g..	sprgs..	sprgs..	ext-r-w.	ext-sht.	Gemr..
Union.....B	2½	2075	152	s.	39x4	39x6	Wis...	4	4-4x6	25.6	4	L.	..	p.	s.	Eismn..	h.	l*.....	ent	d-shft.	Simplex	1200	15	Schblr..	g.	d.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.7	Russel..	Mthr..	.....	int-g..	sprgs..	sprgs.	int-r-w.	ext-r-w.	Ross...
United.....BSW	1	1850	132	s.	36x3½	34x5	Cont..	3	4-3½x 5	22.5	4	L.	..	p.	s.	Eismn..	h.	s,l.....	ent	motor.	Simplex	1125	14	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe	selec	unt-m.	3	7.7	Timkn	Tuthill.	Blood..	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
United.....CSW	2	2550	148	s.	36x4	36x8	Cont..	3	4-4½x5½	27.2	4	L.	..	p.	s.	Eismn..	h.	s,l*.....	ent	motor.	Simplex	888	12	Stmbg..	g.	s.	dd.	B&Bek.	B-Lipe.	selec	amid.	4	8.5	Timkn	Sheldon	Blood..	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
United.....DSW	3½	3450	160	s.	36x5	36x5	Cont..	3	4-4½x5½	32.4	2	t.	..	p.	s.	Eismn..	h.	s,l*.....	ent	motor.	Simplex	980	12	Stmbg..	g.	s.	dd.	B&Bek.	B-Lipe.	selec	amid.	4	8.7	Timkn.	Tuthill	Blood..	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Rose...
United.....ESW	5	4500	160	s.	36x6	40x6	Wis...	3	4-4½x5½	36.1	2	t.	..	p.	s.	Eismn..	h.	s,l*.....	ent	d-shft.	Simplex	951	10	Stmbg..	g.	s.	dd.	B&Bek.	B-Lipe.	selec	amid.	4	11.6	Timkn.	Tuthill	Blood..	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
United Tractor.....	6	2490	110	s.	34x3½	34x7	Buda..	..	4-4½x5½	27.2	4	L.	..	p.	s	Bosch..	..	.....	..	..	.....	....	..	Zenith..	g.	s.	..	Muncie	Muncie	selec	unt-m.	4	10.0	.....	.....	.....	int-g..	rad-rd.	.....	int-r-w.	int-r-w.	Ross...
U. S.....E	2½	2800	144*	s.	34x4	36x4d	Cont..	3	4-4½x5½	27.2	4	L.	..	p.	d.	Bosch..	h.	l, Bosch..	ent.	motor.	Pierce..	1160	15	Stmbg..	g.	s.	c.	Hart..	Cotta..	id-c.	amid.	3	8.2	own....	Tuthill	Hart...	d-chn	rad-rd.	.....	int-r-w.	ext-r-w.	Lvine..
U. S.....H	2½	3250	144*	s.	34x4	36x4d	Cont..	3	4-4½x5½	27.2	4	L.	..	p.	d.	Bosch..	h.	l, Bosch..	ent.	motor.	Pierce..	1160	15	Stmbg..	g.	s.	c.	Hart..	Cotta..	id-c.	amid.	3	8.7	Sheldon	Sheldon	Hart...	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
U. S.....D	3½	3500	162*	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	L.	..	p.	d.	Bosch..	h.	l, Bosch..	ent.	motor.	Pierce..	1090	13	Stmbg..	g.	s.	c.	Hart..	Cotta	id-c.	amid.	3	8.1	own....	Tuthill	Hart...	d-chn	rad-rd.	.....	int-r-w.	ext-r-w.	Lvine..
U. S.....J	3½	3950	162*	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	L.	..	p.	d.	Bosch..	h.	l,Bosch..	ent.	motor.	Pierce..	1090	13	Stmbg..	g.	s.	c.	Hart..	Cotta	id-c.	amid.	3	11.7	Sheldon	Sheldon	Hart...	worm	rad-rd.	.....	int-r-w.	int-r-w.	Lvine..
U. S.....K	5	4850	168*	s.	36x5	40x6d	Wauk.	3	4-4½x6½	36.1	2	L.	..	p.	d	Bosch..	h.	l,Bosch..	ent.	motor.	Wauk..	950	12	Stmbg..	g.	s.	dp.	B&Bek.	Cotta	id-c.	amid.	3	8.8	Sheldon	Sheldon	Hart...	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Lvine..
Universal.....G	1½	1950	133*	s.	34x3½	34x5	Buda..	2	4-3½x5½	22.5	4	L.	..	t.	d.	Eismn..	..	.....	ent.	motor.	own....	1160	15	Zenith..	g.	s.	dp.	B&Bek.	Covert.	selec	unt-m.	3	7.2	own....	.....	.....	worm	rad-rd.	.....	int....	int....	Lvine..
Universal.....D	2	2800	132*	s.	36x4	36x4d	Buda..	3	4-4x5½	25.6	2	t.	..	p.	d	Eismn..	..	.....	ent.	motor.	own....	1057	12	Zenith..	g.	s.	dd.	own....	own....	selec	amid.	3	9.1	own....	.....	.....	d-chn	rad-rd.	.....	ext....	int....	Lvine..
Universal.....A	3	3400	132*	s.	36x5	36x5d	Buda..	3	4-4x5½	25.6	2	t.	..	p.	d.	Eismn..	h.	.....	ent.	motor.	own....	1057	12	Zenith..	g.	s.	dd.	own....	own....	selec	amid.	3	10.2	own....	.....	.....	d-chn	rad-rd.	.....	ext-sht.	int-r-w.	Lvine..
Velie.....25A	2	2750	150*	s.	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	L.	..	p.	s.	Bosch..	h.	None....	ent.	motor.	Pierce..	1008	18	Stmbg..	v.	s.	dp.	own....	B-Lipe.	selec	amid.	4	7.7	Timkn.	Mthr..	Spicer..	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Velie.....26A	3½	3600	172*	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	L.	..	p.	s.	Bosch..	h.	None....	ent.	motor.	Pierce..	1215	15	Stmbg..	v.	s.	dp.	own....	B-Lipe.	selec	amid.	4	10.3	Timkn.	Mthr..	Spicer..	worm	rad-rd.	sprgs.	int....	int....	Gemr..
Vim.....21	½	845	108	p.	31x4	31x4	own...	3	4-3x4½	14.4	4	L.	..	t.	s.	Dixie..	h.	.....	.....	.....	.....	....	25	Zenith..	g.	s.	c.	own....	own....	selec	unt-m.	3	5.25	W-W....	Sheldon	Spicer..	bevel.	sprgs..	sprgs.	ext-r-w.	int-r-w.	Jacox..
Vim.....22	1½	2750	142	s..	36x4	36x6	own...	5	4x3½x5½	22.5	4	..	..	p.	..	Dixie..	h.	.....	.....	.....	Simplex	....	20	Zenith..	g.	s.	dp.	own....	own....	.....	amid.	4	....	Sheldon	.....	.....	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	.....
Vim.....23	3	3550	150*	s.	36x4	36x4d	own...	5	4x4½x5½	28.9	4	..	..	p.	..	Dixie..	h.	.....	.....	.....	Simplex	....	16	Zenith..	g.	s.	dp.	own....	own....	.....	amid.	4	....	Sheldon	.....	.....	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	.....
Walter.....F	5	5000	156	s.	40x6	40x6d	own...	..	4-4½x6½	36.1	4	..	..	p.	s.	Eismn.	f..	s, l West.	....	motor.	own....	1000	...	H&N..	g.	..	dp.	own....	own....	selec	amid.	4	8.0	own....	Merl....	.....	int-g-4	sprgs..	sprgs.	int-r-w.	ext-sht.	own....
Watson.....Tractor	5	4050	80	s	36x4	40x5d	Cont..	3	4-4½x5½	32.4	2	L.	..	p.	d.	Bosch..	h.	.....	ent.	motor.	Pierce..	1100	11	Zenith..	g.	s.	dd	B-Lipe.	B-Lipe.	selec	amid.	4	11.6	Timkn.	Sheldon	Spicer.	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Gemr..
White.....GBBE	¾	2300	133½	p	34x4½	34x4½	own...	2	4-3½x5½	22.5	4	L.	m	p.	s.	.....	h.	s, l*.....	.....	.....	none....	.....	...	own....	g.	s.	p.	own....	own....	selec	amid.	4	....	own....	.....	own...	bevel.	rad-rd.	rad-rd.	int-r-w.	ext-r-w.	own....
White.....TBC	1½–2	3300	157½	s*	36x3½	36x3½d	own...	2	4-3½x5½	22.5	4	L.	m	p.	s.	.....	h.	s, l*.....	.....	.....	none....	.....	...	own....	g.	s.	p.	own....	own....	selec	amid.	4	....	own....	.....	own...	d-red.	rad-rd.	rad-rd.	int-r-w.	ext-r-w.	own....
White.....TAD	3	4100	163	s.	36x5	40x5d	own...	2	4-3½x5½	22.5	4	L.	m	p.	s.	.....	h.	.....	.....	.....	none....	.....	...	own....	g.	s.	p.	own....	own....	selec	amid.	4	....	own....	.....	own...	d-chn	rad-rd.	rad-rd.	int-r-w.	ext-j-s.	own....
White.....TCD	5	5000	169	s.	36x5	40x6d	own...	3	4-4½x6½	29.0	4	L.	m	p.	s.	.....	h.	.....	.....	.....	none....	.....	...	own....	g.	s.	p.	own....	own....	selec	amid.	4	....	own....	.....	own...	d-chn	rad-rd.	rad-rd.	int-r-w.	ext-j-s.	own....
Wichita.....A	1	1800	110*	s	34x3	34x4	own...	2	4-3½x5	19.6	4	L.	..	t.	s.	Bosch..	h.	s,l.....	.....	.....	none....	.....	15	Stmbg..	g.	s.	c.	own....	Covert.	selec	unt-j.	3	7.3	Sheldon	.....	.....	d-chn	rad-rd.	t-arm	int-r-w.	int-sht.	Ross...
Wichita.....K	1	1800	118*	s.	36x3	36x4	own...	2	4-3½x5	19.6	4	L.	..	t.	s.	Bosch..	h.	s,l.....	.....	.....	none....	.....	15	Stmbg..	g.	s.	c.	own....	Covert	selec	amid.	3	7.8	Sheldon	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wichita.....L	1½	2100	118*	s.	36x3	36x5	own...	2	4-3½x5	19.6	4	L.	..	t.	s.	Bosch..	h.	s,l.....	.....	.....	none....	.....	15	Stmbg..	g.	s.	c.	own....	Covert	selec	amid.	3	8.6	Sheldon	.....	.....	worm	sprgs..	sprgs..	ext-r-w.	int-r-w.	Ross...
Wichita.....B	2	2500	118*	s.	34x3½	34x6	own...	2	4-3½x5	19.6	4	L.	..	t.	s.	Bosch..	h.	s,l.....	.....	.....	none....	.....	13	Stmbg..	g.	s.	c.	own....	Covert	selec	unt-j.	3	8.2	Sheldon	.....	.....	d-chn	rad-rd.	t-arm	int-r-w.	int-sht.	Ross...
Wichita.....R	2½	2700	144*	s.	36x4	36x7	Wauk.	3	4-3½x5½	22.5	4	L.	..	p.	s.	Bosch..	h.	s,l.....	ent.	motor.	Wauk..	1060	13	Stmbg..	g.	s.	c.	own....	Covert	selec	amid.	3	10.6	Sheldon	.....	.....	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Wichita.....O	3½	3600	165*	s	36x5	36x5d	Wauk.	3	4-4½x5½	32.4	2	L.	..	p.	s.	Bosch..	h.	s,l.....	ent.	motor.	Wauk..	1200	11	Stmbg..	g.	..	c.	Hart..	Covert	selec	amid.	3	11.7	Sheldon	.....	.....	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Wichita.....Q	5	4300	165*	s.	40x6	40x6d	Wauk.	3	4-4½x5½	32.4	2	L.	..	p.	s	Bosch..	h.	s,l.....	ent.	motor.	Wauk.	940	9	Stmbg..	g.	s.	c.	Hart..	Covert	selec	amid.	3	13.7	Sheldon	.....	.....	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Wichita.....M	2	2500	144	s.	36x3½	36x6	Wauk.	3	4-3½x5½	22.5	4	L.	..	p.	s.	Bosch..	h.	s,l.....	ent.	motor.	Wauk..	1060	13	Stmbg..	g.	s.	...	.....	Fuller..	selec	amid.	3	10.6	Sheldon	.....	.....	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Wilcox.....S	1	1950	128	p*	35x5*	35x5*	Cont..	3	4-3½x5	22.5	4	L.	..	t.	s.	Bosch..	h.	l, West...	ent.	motor.	Pierce.	1200	18	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	6.5	Sheldon	Sheldon	Spicer..	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Wilcox.....X	1½	2775	144	s.	36x4	36x5	own...	3	4-4½x5	29.0	2	L.	..	p.	s.	Bosch..	h.	l, West...	ent.	motor.	Pierce.	1100	16	Stmbg..	g.	s.	c.	own....	own....	selec	amid.	3	7.7	Sheldon	Sheldon	own*...	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Gemr..
Wilcox.....Q	2	2950	150*	s.	36x4	36x3½d	own...	3	4-4½x5	29.0	2	L.	..	p.	s.	Bosch..	h.	l, West...	ent.	motor.	Pierce.	1100	14	Stmbg..	g.	s.	c.	own....	own....	selec	amid.	3	8.7	Sheldon	Sheldon	own*...	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Gemr..
Wilcox.....P	3½	3600	154*	s.	36x5	36x5d	own...	3	4-4½x5	29.0	2	L.	..	p.	s.	Bosch..	h.	l, West...	ent.	motor.	Pierce.	1100	10	Stmbg..	g.	s.	c.	own....	own....	selec	amid.	3	11.7	Sheldon	Sheldon	own....	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Gemr..
Wilcox.....W	5	4475	162	s.	36x5	40x6d	Wauk.	..	4-4½x6½	36.1	2	..	..	p.	s.	Bosch..	h.	.....	ent.	motor.	Wauk..	1000	12	Stmbg..	v.	s.	c.	own....	own....	selec	amid.	4	8.7	Sheldon	Sheldon	Spicer*	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Gemr..
Wilson.....1	1	1450	124*	s	34x3½	34x4	Cont..	3	4-3½x5	19.6	4	L.	..	p.	s.	Eismn..	f..	.....	.....	.....	.....	1800	18	.....	g.	s.	dd.	.....	Covert	selec	unt-m.	3	....	.....	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wilson.....E	2	2550	144	s	36x4	36x4d	Cont..	3	4-4½x5½	27.2	4	L.	..	p.	s.	Eismn..	f..	.....	ent.	motor.	Pierce.	1050	15	Marvel.	g.	s.	c.	Hart..	Covert.	selec	amid.	3	8.6	Sheldon	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wilson.....	3½	3800	160	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	4	L.	..	p.	s.	Eismn..	f..	.....	ent	motor.	Pieree	1100	13	Marvel.	g.	s.	dd.	Warner	Warner	selec	amid.	4	8.75	Sheldon	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wilson.....	5	4600	160	s.	36x6	40x6d	Cont..	3	4-4½x5½	32.4	4	L.	..	p.	s.	Eismn..	f..	.....	ent	motor.	Pierce.	1100	12	Marvel.	g.	s.	dd.	Warner	Warner	selec	amid.	4	10.2	Sheldon	.....	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Winther.....48	2	3000	150	s	36x4	36x4d	Wis...	1	4-4x6	25.6	4	..	..	p.	s.	Eismn.	h.	Bijur....	ent	motor	Duplex.	1100	15	Master.	v.	d.	dp.	B&Bek	B-Lipe.	selec	amid.	4	8.1	Clark.	Mthr...	Blood..	int-g..	sprgs..	sprgs.	ext-r-w.	int-r-w.	Ross...
Winther.....68	3	3600	150	s	36x5	36x5d*	Wis...	1	4-4x6	25.6	4	..	..	p.	s.	Eismn.	h.	Bijur....	ent	motor	Duplex.	1300	14	Master.	v.	d	dp.	B&Bek.	B-Lipe.	selec	amid	4	10.0	Clark.	Mthr...	Blood..	int-g..	sprgs..	sprgs.	ext-r-w.	int-r-w.	Ross...
Winther.....88	4	4200	156	s	36x5	.....	Wis...	1	4-4½x6	28.9	4	..	..	p.	s.	Eismn.	h.	Bijur....	ent	motor	Duplex.	1300	12	Master.	v.	d.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	12.5	Clark.	Mthr...	Blood..	in-tg..	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Winther.....108	5	4800	162	s	36x5	40x6d*	Wis...	1	4-4½x5½	36.1	2	..	..	p.	s.	Eismn.	h.	Bijur....	ent	motor.	Duplex.	1100	10	Master.	v.	d.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	12.5	Clark.	Mthr...	Blood..	int-g..	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Winther.....128	6	5250	162	s.	36x6	40x7d*	Wis...	1	4-5½x5½	42 0	2	..	..	p.	s.	Eismn.	h.	Bijur....	ent	motor	Duplex.	1100	10	Master	v.	d.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	12.5	Clark.	Mthr...	Blood..	int-g..	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Winther.....148	7	5500	162	..	36x6	40x14	.....	..	4-5½x6	42.0	..	..	..	..	..	Eismn..	..	.....	.....	.....	Duplex.	1050	10	.....	..	..	..	B&Bek.	B-Lipe.	selec	amid..	4	....	Clark..	.....	.....	int-g..	.....	.....	.....	.....	.....
Witt Will....WD18	1	2000	120	s*	36x3*	36x4*	Cont.	3	4-3½x5½	22.5	4	L.	..	p.	s.	Eismn.	a.	.....	ent.	motor	Pierce.	.....	...	Zenith..	g.	s	dd	B-Lipe.	B-Lipe	selec	unt-m.	3	....	Timkn	.....	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross...
Witt Will....WD18	2	2500	144	s.	36x3½	36x7	Cont..	3	4-4½x5½	27.2	4	L.	..	p.	s.	Eismn.	a.	.....	ent.	motor	Pierce.	.....	...	Zenith..	g.	s.	dd	B-Lipe	B-Lipe	selec	unt-m	3	....	Timkn	.....	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross...
Wisconsin.....B	1½	1650	136	s.	34x3½	34x4	Wauk.	3	4-3½x5½	19.6	4	L.	..	p.	s.	Eismn.	h.	.....	ent.	motor	Wauk..	1200	15	Master.	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.7	Sheldon	Sheldon	Blood..	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine..
Wisconsin.....C	2½	2800	156*	s.	36x4	36x6*	Wauk.	3	4-4x5½	25.6	2	L.	..	p.	s.	Eismn.	h.	.....	ent.	motor	Wauk..	1100	14	Master.	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	8.7	Sheldon	Sheldon	Blood..	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine..
Wisconsin.....E	5	5000	166	s.	36x6	40x6d	Wauk.	3	4-4½x6½	36.1	2	L.	..	p.	s.	Eismn.	h.	.....	ent.	motor.	Wauk..	1300	12	Master.	g.	s.	dd.	B&Bek.	Cotta..	id-c.	unt-m.	3	11.5	Sheldon	Sheldon	Blood..	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine..
W. S.....4	3½	.....	154	s.	36x6	36x6	Con t..	3	4-4½x5½	27.2	2	L.	..	p.	d.	Natl..	h.	.....	.....	.....	.....	.....	...	Zenith..	g.	s.	d.	Fuller..	Fuller.	.....	unt-m.	3	....	Timkn.	.....	.....	wm-4	sprgs.	sprgs.	int.	int.	Ross...

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WHAT CANADA HAS DONE—*In This Issue*

MOTOR WORLD

for

DEALERS, JOBBERS AND GARAGEMEN

Volume LV
No. 2

New York, April 10, 1918

Ten cents a copy
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Or Both?

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DEALERS, JOBBERS AND GARAGEMEN

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December 22nd, 1917

Selden Truck Sales Company
Rochester, New York

A letter that speaks for itself

Gentlemen:

The writer wishes to express his sincere appreciation of the courtesy shown him by the Officers of your Company and the heads of the different departments.

It is a real pleasure to meet men such as you have in your organization, and I am only sorry that I did not visit your factory a long time ago.

As to your factory, I will frankly say that it was far beyond my expectations as to size and modern equipment for manufacturing motor trucks. I was amazed to see the number of trucks under construction at one time and the amount of stock that you have on hand in the line of parts.

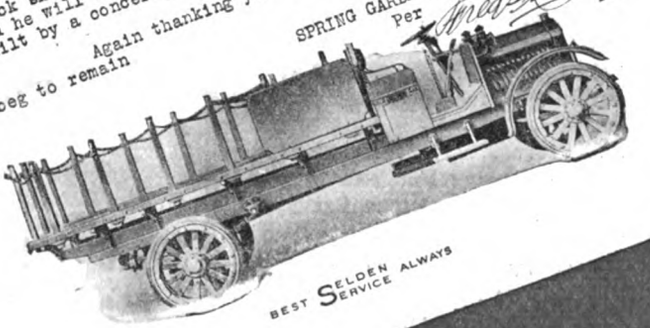
Any man contemplating the purchase of a motor truck should without fail see a factory such as yours, and he will be thoroughly convinced that the truck is built by a concern that is reliable from all angles.

Again thanking you for the favors shown, we beg to remain

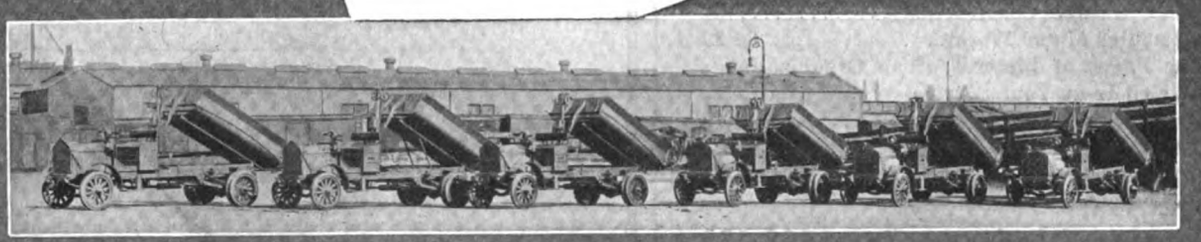
Very truly yours,

SPRING GARDEN AUTO & MACHINE CO.

Per Fred Klingensmith Pres.



BEST SELDEN SERVICE ALWAYS



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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LV | New York, U. S. A., Wednesday, April 10, 1918 | No. 2

HIS AMBITION!



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What the Dealers Are Doing for the 3d Liberty Loan

Let's Hear from Your Town
Get Started Early and Finish Strong
Read These Stories—Then Go Them One Better

DEALERS in many cities are organized and working for the Third Liberty Loan. Every city, every dealer and every individual in the trade should be engaged in this work. There is no excuse for not being so engaged.

What Chicago Is Doing

In the second loan the trade raised $969,000; its quota in the third loan is $1,800,000.

President George H. Bird of the Chicago Automobile Trade Assn. is chairman of the Liberty Loan Drive. Vice-chairmen have been appointed as follows: Passenger Car Division, George H. Bird; Trucks, E. J. Kilborb; Accessories, Ward Perry; Tires, A. W. Moore; Wagon and Body Builders, William J. Hughey, Sr.; Garages and Repairshops, H. E. Halbert; Liverymen, F. M. Johns; Motorcycles, R. C. Crist.

In addition to these there are four sales managers assisting in sales work. They are called captains and are supplied by the Liberty Loan Campaign Committee. The captains with the divisions they assist are: R. B. Barton, Passenger Cars; M. Ferguson, Trucks and Accessories; J. R. Carnahan, Tires, Wagons and Body Builders; C. E. Sutton, Garages, Repairshops, Liverymen and Motorcycles.

Each dealer appoints a chairman within his own organization and is responsible for the results obtained there.

Every morning Assistant Secretary T. D. Beard sends out a bulletin telling of good work that has been done by different companies and individuals. In connection with this bulletin there is an indicator of results, on one side of which are printed the names of firms who have contributed, and on the other side are names of those who have not bought any bonds. Obviously there is no honor connected with being listed on the wrong side of the sheet.

In the second campaign the thermometer on page 7 was used. This time the same thermometer, or a speedometer or some other device will be employed. This "sheep and goat" affair is distributed every morning to all the dealers in the trade and hung in their front windows. Those who are on the proper side of the indicator hang them in the window and those on the wrong side make every effort to get over on the right side.

One of the leading dealers makes a practice of checking over his list of employees after they have purchased bonds to see whether they are buying according to their ability. Anything that savors of a lack of patriotism is summarily dealt with. Companies which sell bonds to more people than they have employees are given a rating of more than 100 per cent. There were quite a number of these in the last campaign.

Frequent meetings of the committees are held.

What Madison, Wis., Is Doing

L. F. Schoelkopf, president of the Madison Assn. of Commerce, has charge of the Liberty Loan Campaign. Dealers are lending cars and carrying flying squadrons about the county. The automobile division of the Assn. of Commerce is keeping up-to-the-minute data on road conditions and assists in booking speakers and bond salesmen.

What Green Bay, Wis., Is Doing

The Brown County Automobile Trade Assn. is looking after the transportation in Brown County. It has appointed a committee of three to act with the Central Committee in selling bonds. Solicitation is being made throughout the trade.

What Mankato, Minn., Is Doing

The automobile dealers are affiliated with a City Committee in Liberty Loan work. There are 25 chairmen with squads of three salesmen who are canvassing the entire city. There are soliciting squads and flying squads. The former make house-to-house calls and if any individual does not buy the matter is left open for the flying squad. Class A citizens are asked for $200 or more, and all others for whatever they can buy. There are 350 solicitors in Mankato and Blue Earth counties, the latter of which has 30,000 people.

What Cincinnati Is Doing

The Cincinnati Automobile Dealers' Assn. is working with Team A of the local Liberty Loan Committee. H. E. Leyman, one of the directors of the association, is chairman of Team A. A thorough canvass is to be made and cars are being furnished for the transportation of speakers and salesmen. Forty-five cars are being furnished to the War Educational Board School which is instructing motor mechanics.

What Harrisburg, Pa., Is Doing

The Harrisburg Motor Dealers' Assn., of which J. Clyde Myton is secretary, has invested $500 of its treasury funds in Third Liberty Loan bonds. In addition each dealer is canvassing his own organization.

What Oklahoma City Is Doing

While no concerted action has been taken by the Oklahoma City Dealers' Assn., every member is making a canvass of his own organization.

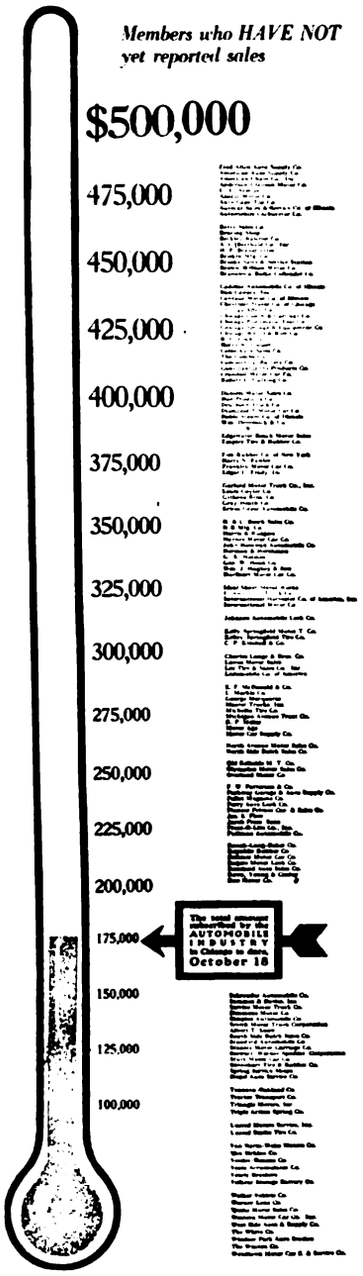
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AUTOMOBILE INDUSTRY LIBERTY BOND CAMPAIGN

Members who HAVE reported sales

FIRMS	Percentage of employees who have bought bonds
Apperson Motor Car Co.	100
Chicago Republic Truck Co.	100
Federal Motor Truck Co.	100
General Motors Truck Co.	100
Illinois Indemnity Exchange	100
Mitchell Automobile Co.	90
Harry Newman-Stratton Co.	88
Chicago Motor Car Co.	87
Elec. Auto Lite Service Station	86
Goodyear Tire & Rubber Co.	77
Arthur Jones Electric Co.	77
Illinois Motors, Inc.	75
Moline Automobile Co.	62
Marmon Chicago Co.	60
Packard Motor Car Co.	59
H. Paulman & Co.	51
Buick Motor Co.	50
Findersen & Krofp Mfg. Co.	50
Anderson Electric Car Co.	48
Chicago Auto Sales Co.	45
National Motor Sales Co.	45
Thos. J. Hay, Inc.	37
Bird-Sykes Co.	35
Nelson & LeMoon	33
O. C. Owen & Co.	33
Stromberg Motor Devices	33
Wheeler-Schebler Carb. Co.	25
Schillo Motor Sales Co.	24
Ahlberg Bearing Co.	23
Firestone Tire & Rubber Co.	22
Illinois Oldsmobile Co.	21
B. F. Goodrich & Co.	21
James Levy Motors Co.	20
Dashiell Motor Co.	18
Lexington Motors Chicago Co.	17
Reo Motor Car Co.	15
Willard Storage Battery Co.	10
Oakland Motor Co.	3

Members who HAVE NOT yet reported sales



WATCH THE INDICATOR

This bulletin issued daily until October 28th, by The Chicago Automobile Trade Association.

Telephone Calumet 6946 for particulars, how to get your name on the proper side of this poster

This is the thermometer that the Chicago Automobile Trade Association had posted in the salesroom windows during the second loan campaign. A similar plan is being used in the third loan campaign. Those who have bought bonds are on the left side and the others on the right. Nearly everyone got in the proper column before the finish

What Hartford Is Doing

A prominent part was played in the opening of the third Liberty Loan Drive by the Automobile Club of Hartford and the Hartford Automobile Dealers' Assn., Inc. The drive began on the closing day of the annual Hartford motor car exhibition. The Automobile Club of Hartford had a booth at the show, where literature was passed out during the week. Fred W. Dart, a charter member and founder of the automobile club as well as the dealers' association, was appointed chairman, with Russell P. Taber and Ralph D. Britton as associates.

This committee in turn appointed the following subcommittee: Edward H. Richardson, Ralph A. Barkman, Dwight Burnham, William H. Miner, Howard D. Graves, William M. Turnbull, Robert J. Flynn, Arthur Beeman and Daniel A. Harrington, Jr. Each committeeman was instructed to call on three dealers at the show and sell him Liberty Bonds. In addition Chairman Dart and his associates established a Liberty Bond sale booth in the lobby of the armory where the show was held. Several well-known local women held the booth. Every car in the show bore on the radiator a Liberty bell. Other literature was passed around freely, such as transparent pictures for windshields, stamps, stickers, etc. The committee also arranged with the Dime Savings Bank to finance all who may want to buy bonds on the installment plan.

Chairman Dart said that very good results have been already attained. Dealers and club members will also work on the drive this coming week among their trade. Major E. Alexander Powell, now stationed at the government arsenal at Springfield, who was with the Belgian Army in 1914 and noted the advance of the Germans toward Paris, spoke in the evening.

An automobile parade was held Thursday evening and this stimulated interest, as did the presence of the tank Britannia, which manoeuvred in Pope Park. Mayor Hagarty and Governor Holcombe spoke from the deck of the tank about the Liberty Loan Drive. Indications are that the local quota will be oversubscribed.

What New York Is Doing

Charles M. Brown, president of the Automobile Dealers' Association of New York City, is chairman of a trade committee representing the five boroughs of Greater New York. The trade raised $5,000,000 on the second loan, and it has been asked to raise $12,000,000 on the third loan. It is proposed to have a force of 100 salesmen to canvass the trade.

The members of the general committee are:

Chairman, Charles M. Brown, the Winton Company; vice-chairman, Charles E. Miller; secretary, Charles A. Stewart; R. M. Johnston, the White Company; E. S. Hare, Packard Company; F. G. Carrie, New York Marmon Company; C. E. Riess, Charles E. Riess & Co.; A. G. Southworth, Buick Motor Company; Water E. Woods, Van Cortlandt Vehicle Corporation; W. C. Poertner, Poertner Motor Car Company; Harry Houpt, Hudson Motor Car Company of New York; H. J. De Bear, Maxwell Motor Company; I. M. Uppercue, Cadillac Motor Company of New York; C. H. Larson, Oldsmobile Company of New York; E. Lescaris, 114 West Fifty-fourth Street; John F. Plummer, Liberty Motor Car Company; William Haradon, Royal Garage; John B. Elsey, Bronx Auto Dealers' Association.

Representing Brooklyn Automobile Sales Section: Arthur E. Randall, Brooklyn Motor Dealers' Association; A. D. Corwin, Buick Motor Company; C. J. Maxson, Reo Motor Car Company; C. M. Bishop, Bishop, McCormick & Bishop; William H. Kouwenhoven, 2 Remsen Place.

Representing New York Accessories Section: J. C. Nichols, 161 Broadway; Louis Mansbach, care of Times Square Auto Company; William A. Allen, 16 West Sixty-first Street; F. W. White, Stewart-Warner Company.

Representing Brooklyn Accessories Section: D. D. Martin,

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1374 Bedford Avenue; Frederick W. Brecht, 1580 Flatbush Avenue; Robert P. Lumley, 1408 Newkirk Avenue; Charles F. Batt, 998 Bergen Street.

What St. Louis Is Doing

Nearly all the dealers are members of the Chamber of Commerce and are working with that organization in the Liberty Loan Campaign. The first two weeks the campaign will be general in character, and after that will come concentration on the trades. Twenty car salesmen have enlisted as bond sellers.

What Mason City, Ia., Is Doing

As soon as the receipts of the recent show are figured up the Mason City Automobile Dealers Assn. will invest the profit in bonds. E. H. Wagner is secretary. In addition to this the association is working with the City Board of the Liberty Loan.

What Parsons, Kan., Is Doing

The dealers in Parsons and Labette County are working with the Labette County Bankers' Assn., which is handling the loan.

What Newark, N. J., Is Doing

The state chairman of the loan work is in Newark. He has appointed a local chairman and local committee, the latter being made up of representatives of the various industries. The sub-chairmen select their own committees.

The executive secretary of the New Jersey Automobile Trade Assn., C. E. Holgate, maps out the automobile trade in blocks and a different block is assigned to each committeeman, who calls on his prospects and reports to the general committee's chairman, turning in whatever cards have been signed up and following up his list until it is finished.

More than 1000 employees from local shops and salesrooms are in the service. Two of the board of trustees are in France, and the trade is strongly supporting all war activities. A page newspaper advertisement was run by all the dealers Sunday, April 7, incorporating one of the cartoons used in Motor World, March 27.

What Des Moines Is Doing

The Motor Trades Bureau of the Chamber of Commerce has picked out five teams of three men each from the car and accessory trade. Letters have been sent to every dealer asking him to make a list of his employees and the amounts they will buy. The teams of salesmen then go to the places of the different dealers and complete the work. All the firms are card-indexed in an effort to ascertain the amount they would be justified in buying.

What Cleveland Is Doing

The Cleveland dealers are co-operating with the Cleveland Liberty Loan Committee which has been organized on a real selling basis. M. L. Bridgman, sales manager of the H. F. Neighbors Motor Co., is one of the leaders. The men of the city have been card-indexed, and the cards are given out to selected salesmen, many of whom were chosen from the automobile trade. In fact there has been much comment as to the large number of salesmen that the dealers were able to contribute.

What Baltimore Is Doing

Baltimore is fortunate in the opening of its Third Liberty Loan Campaign in that President Wilson was the principal speaker after viewing the military spectacle of 12,000 men. An "Over There" Liberty Loan exhibition was held in the Fifth Regiment Armory. Along the five miles of the parade were more than a half-million people whom salesmen solicited. The automobile trade contributed many salesmen, at the request of Walter F. Kneip of the Baltimore Automobile Dealers' Assn., which plans to devote certain days every week to the selling of bonds.

What Philadelphia Is Doing

Daily meetings are being held at association headquarters and reports are issued there. The first day this sale was $170,000. Committees meet in the association rooms at lunch, compare notes and ideas. It is planned to sell a million dollars' worth of bonds in the trade, which is divided into three groups, with the following teams, chairmen and salesmen:

Group A—Motor Cars

A. E. Maltby, chairman.
W. A. Almy, vice-chairman.
Team 1
C. R. Cunliffe
A. M. Pollock
Team 2
S. Stankowitch
S. R. Blocksom
Team 3
C. W. Lloyd
H. L. Bogardus
Team 4
F. G. Browning
J. J. Smith
Team 5
E. W. Burnshaw, Jr.
O. W. Doolittle
Team 6
Benj. Hoffman
E. M. Bartlett
Team 7
T. S. Johnston
H. B. Harper
Team 8
W. G. Herbert
A. W. Lockwood
Team 9
J. C. Bartlett
N. G. Wilson
Team 10
A. W. La Roche
G. P. Parker

Group B—Tires

W. R. Walton, chairman
Garfield List, vice-chairman
E. H. Fitch, vice-chairman
F. A. Kissel
D. D. Yard
S. M. Beatty
H. D. Worthington
R. L. Warren
Charles E. Fellows
E. B. Richardson
T. Y. Sutthan
Harry G. Fitler
H. E. Elliott
W. F. Metzgar

Group C—Accessories

G. B. Shearer, Jr., chairman
A. W. Stellwag, vice-chairman
E. B. P. Carrier
Albert Streicher
N. A. Petry
C. H. Walz
H. E. Almang
T. Scott Eavenson
E. E. Smith
W. J. Little
C. B. Solly
George L. Carroll
E. Fyfe
J. H. Nash
W. L. Batt
S. C. Simon
F. E. Stow

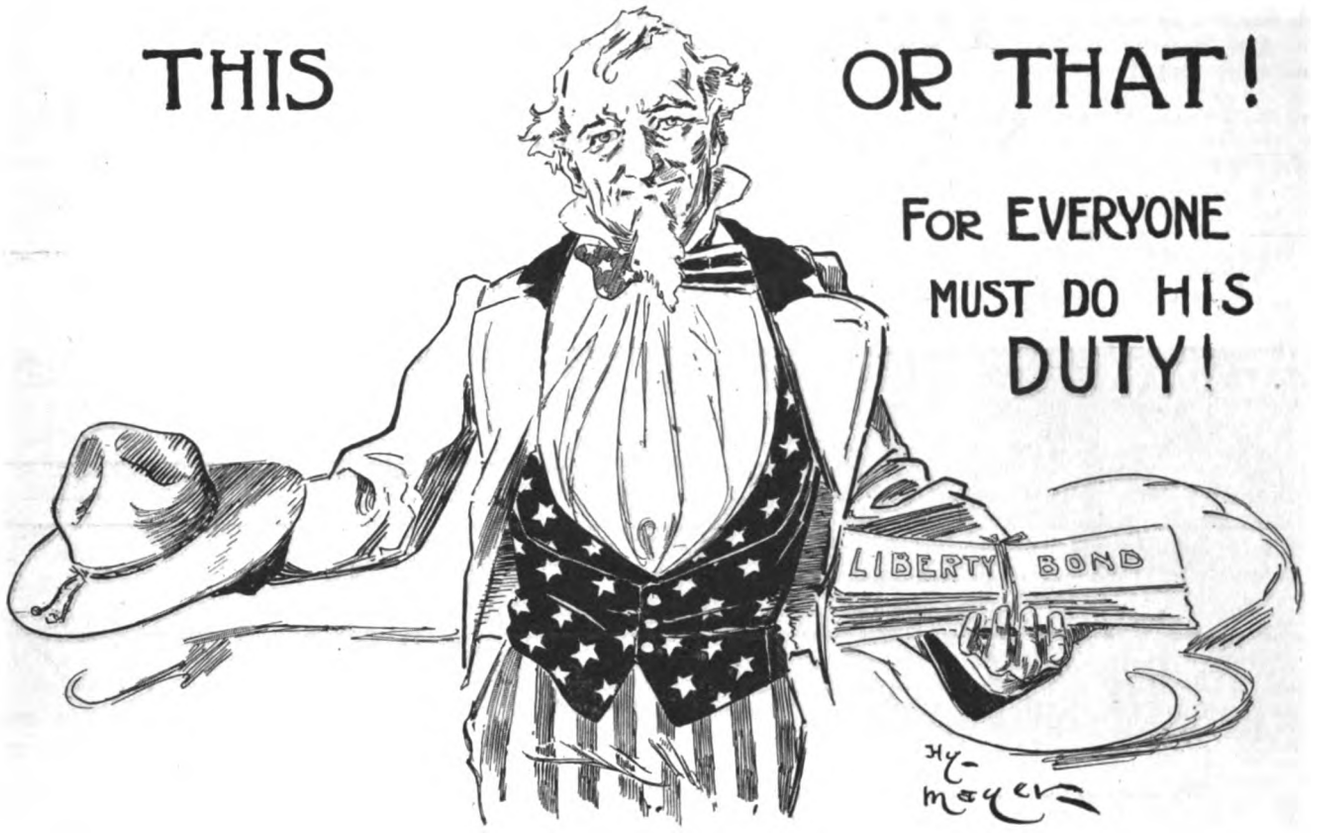
What Milwaukee Is Doing

The participation of Milwaukee motor car manufacturers and dealers in the Third Liberty Loan campaign will be even more thorough than that of the second loan campaign, when the industry greatly exceeded its quota and ranked among the top-notchers in the percentage of over-subscription. An efficient system of solicitation has been worked out by the Milwaukee Automobile Dealers, Inc., which organization embraces practically every distributer and dealer in Milwaukee. Its campaign not only will cover the distributers and dealers, but the entire industry, including makers of engines, complete vehicles, parts, etc., the whole having been grouped as one for the purposes of the drive.

On Saturday, April 13, the M. A. D. will provide a complete section in the Liberty Loan demonstration to be held in Milwaukee. Preparations are being made for an immense turnout. To show their patriotism and avoid discrimination, it has been decided that all who participate in the motor industry section shall walk instead of riding in cars or trucks. Frank J. Edwards, president of the Kissel-Kar Co. and Edwards Motor Car Co., has

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Come Across or The Kaiser Will



Will you lend your dollars to the United States Government, or will you help pay a big indemnity to the Imperial German Government?

been appointed general chairman of the section. Alton J. March, president of the M. A. D., has been selected as commander, and Bart J. Ruddle, assistant secretary and manager, will act as quartermaster. It is hoped to have from 1000 to 1200 persons in line, a call having been issued to every garage, service station, salesroom, tire and supply house, repairshop, filling station, etc., to send not only the employers, but every employee who can be spared.

There was a similar participation in the preparedness parade held in Milwaukee in June, 1916, and the two Liberty Loan demonstrations during 1917, in all of which the motor industry section made perhaps the most impressive showing of any industry which took part.

What Spokane Is Doing

The dealers are contributing trucks to carry floats for the Spokane Inter-State Fair, which is putting on the Liberty Loan Pageant. The floats are "Monitor," "Merrimac," "Goddess of Liberty," "Keep the Home Fires Burning," "Burning Up of the Maine," "The Liberty Bell," etc. In addition, dealers are turning out 400 men who will assist in the work.

What Boston Is Doing

The Boston Automobile Dealers' Association has named George T. Kimball chairman of the Liberty Loan committee. A committee of 40 men will be chosen and a mass meeting of the trade will be held Thursday, April 11, at which there will be well-known speakers. The committee and its numerous assistants will then canvass the trade. Dealers played an important part in a Liberty Loan parade on April 6.

What Minneapolis Is Doing

The Minneapolis Automobile Trade Association will not make a separate campaign for the third Liberty Loan sale, although it led the city in the second loan campain. The association will subscribe for a proportion of the bonds, but owing to the attitude of objection by the executive committee of the loan organization will not make a separate campaign. The reason is not given. The association has offered to the loan committee and the war savings committee the use of the Minnesota Motor Reserve, Special Service No. 1, which means use of 2000 cars or units of 10 in 200 districts. This service has been accepted. The association also has offered the valuable service to agents of the Department of Justice in the State.

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Ontario Dealers Organize With Retail Merchants

New Association Becomes Section of General Trade Movement

By Ray W. Sherman



The Ontario Car and Accessory Dealers had their pictures taken in front of the Ontario Parliament Building in Toronto as part of their convention program

TORONTO, April 4—The motor car and accessory dealers of Ontario have formed an association, and while the number who took part in the first meeting was not large there are good prospects of a successful organization.

Many associations have been formed with enthusiasm, and have then died more or less slowly because there was not the necessary machinery for keeping them alive. The machinery is, however, provided in this case, which makes it seem likely that the association will grow and become one of the best in the trade.

The machinery which can do this is the Retail Merchants' Association of Canada, which has enrolled in its ranks various trades with a membership of about 12,000. The trades include the bakers, grocers, druggists, butchers and numerous others. Each operates as a section of the parent organization, has separate meetings and handles its own problems but operates through a central association headquarters in Toronto, much as labor organizations operate.

This means that Secretary W. C. Miller of the Retail Merchants' Association is also secretary of the new car and accessory section. It means that the organizing and operating facilities of the Retail Merchants' Association, with its headquarters at 2 College Street, Toronto, are at the disposal of the new section.

As the organizer for the parent association travels around Ontario in his work with all the other sections he will at the same time do organization work among the car and accessory dealers, gathering dues, forming locals and building up the association wherever he goes. This permits organization work to be done in all trades with a single overhead.

One For All—All For One

Some of the measures that are taken up by the parent association may not affect the motor car and accessory trade directly, and some may not affect the grocery trade directly, but all of them are for the betterment of retail conditions generally.

With this machinery the motor car section is enabled to start out strongly and without going through that financially struggling period that has been the downfall of so many motor trade associations.

The officers of the new association—or section—are: Chairman, S. H. Rowed, Ontario Garage & Sales Co., London; first vice-chairman, Arthur Sharp, Wolseley Tool & Motor Car Co., Ltd., Toronto; second vice-chairman, Joseph J. Duffus, Ford dealer, Peterboro; treasurer, Henry Angrove, Angrove Bros., Kingston; secretary, W. C. Miller, 2 College Street, Toronto.

The idea of the association was conceived by the accessory jobbers, who are quite close to the car dealers throughout the province, and some of whom are also car distributers. Hyslop Bros., one of the leaders in the movement, is a jobber, and is also the distributer of the Cadillac in Canada east of Manitoba.

Quite a few of the Toronto dealers attended parts of the convention, but they were closer to their places of business than were the out-of-town men and so did not stay to the finish in any large number. The next convention will be held at a time when the sales season is not so near at hand. It is stated that the Toronto dealers favor the movement, despite their absence, and will likely give it their support.

The convention was attended by men from considerable distances. London was well represented, there were several from Peterboro and Kingston, and messages of support were received from Ottawa and as far west as the "Soo" country. Having set the machinery in operation, the jobbers of accessories declined to accept offices, stating that the organization should be one of the car interests and not guided and directed by the accessory end of the trade. The jobbers, however, stated that they would lend every possible support.

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In some sections in "the States" the big city car dealers have declined to interest themselves in state associations that have been promoted by the jobbing interests, and it was desired to avoid any such condition in Ontario.

Discuss Many Subjects

The convention was called for Monday, Tuesday and Wednesday. Monday about 50 men appeared during the day and registered, but no attempt was made to hold meetings until Tuesday. Tuesday and Wednesday there were addresses and discussions with the election of officers Wednesday afternoon. Talks were made as follows: B. W. Swieman, president of the Ontario Provincial Board of the Retail Merchants' Association; Secretary W. C. Miller; W. M. Gladish, Motor Magazine, "Organization"; A. A. Briggs, Dunlop Tire Co., "Tires."

John E. Gossett, Travelers Insurance Co., "Automobile Insurance"; Mr. Beach, Imperial Oil Co., "Credits" and "Oils"; F. W. Evans, Canadian Fairbanks-Morse Co., "Present Day Problems"; Ray W. Sherman, Motor World, "The New Motor Car Business"; Donald Johnston, Stewart Products, Ltd., "Speedometers"; H. C. Lower, Goodyear Tire & Rubber Co., "The High Cost of Dealer Turnover"; Mr. Edgar, Canadian General Electric Co.

John C. Kirkwood, business counsel, "Ascertaining and Recovering the Cost of Doing Business;" Cecil Dixon, Hyslop Bros., "Selling Accessories"; Mr. Stanyon, K. & S. Tire Co., "Advantages and Disadvantages of a Non-skid Tire"; F. B. Caswell, Champion Spark Plug Co., "Salesmanship"; Mr. Madden, A. D. Gorrie Co., "Motor Delivery"; F. H. Elliott, Griffin & Saddler, "Motor Truck Delivery"; C. K. Nelson, Splitdorf Electrical Co., "Ignition"; R. A. Baker, Baker Advertising Co., "Advertising"; F. B. Uttley, Acton Publishing Co., "Sales Letter Writing."

Not Unlike "The States"

The problems that are bothering the Canadian dealers are in many cases much the same as those that trouble the dealers in "the States." For instance, there is just as great a need here as across the border for better business and accounting methods. John C. Kirkwood, who handled this subject in an address, received close attention. Several dealers told how they budget their year's expenses and keep their various departments separate and make each pay.

There was an interesting discussion on used cars, which resolved itself into the conclusion that the problem requires business-like handling and can be solved if so treated. Interest was expressed in the appraisal plans used in several American cities and in the National Used Car Market Report.

London tried a used-car mart with an auctioneer, but the expenses were high and the bids very low, so the plan was dropped. The Ford dealers in London have practically set values for various Ford models.

A question agitating the Canadian trade just now is the talked of restriction of certain imports from "the States." Cars, tires and accessories are spoken of as being on the list. A firm restriction would favor those goods made in Canada and would curtail the businesses of those dealers the bulk of whose wares are imported. Numerous inquiries have been made at Ottawa and the best information that can be secured is that there is just as much opposition to the plan as there is support, and that the situation is very indefinite. Few dealers believe a drastic plan will be put into effect. The reason for the proposed plan is that Canada has been buying so much more from "the States" than "the States" have been buying from Canada that the balance of trade is disturbed and Canadian exchange is off 1½ or 2.

This matter will be handled by the new organization, which has also lent its support to various other activities of the parent retailers' association. About 30 resolutions were passed. They are:

What They Did

1—Support to care of returned soldiers and employment for them wherever possible.

2—In favor of daylight saving. Canada didn't set its clocks ahead when the United States did.

3—In favor of a false advertising law.

4—Creating the new association.

5—Against special prices to dealers by some manufacturers.

6—Against manufacturers selling to consumers.

7—Favoring a law requiring merchants to keep books. The present law provides that books must be kept, but not until a man has been in business 5 years.

8—Urging members to aid the Ontario Provincial Board of the association in securing data as to the damage that is being done to the retailing trade throughout Canada by mail order companies.

9—Pledging support to the development of the buy-at-home idea.

10—Not passed. Resolution recommending that retail price be made part of the trade mark. It was deemed inadvisable because of the complications that would arise.

11—Recommending that members take advantage of the freight savings department of the association. This department scans the bills of members, investigates the rates and classifications and returns to the member half of any overcharges that are collected. In case of no discovery of an overcharge there is no charge to the member.

12—Favoring an Inland Trade Commission, to have supervision over trade affairs, regulations and disputes the same as the Board of Railway Commissioners guides railway affairs.

13—Tabled. This resolution recommended that manufacturers who do not ship an order complete be required to pay any increases in duty or freight that are made before the balance is shipped.

14—Favoring an amendment to the Pedlers and Transient Traders Act to bar out those who seek to sell to dealers or consumers but who have no place of business in the municipality.

15—Asking the government to require all catalogs of mail order houses to be mailed from the mailing point. It is charged that hundreds are shipped to distant points and mailed from there, saving the mail order houses 8 cents on each catalog.

16—Asking that retailers be relieved of the cartage charges at one end of a shipment. Some now pay at both ends.

17—Favoring the giving of publicity to the price maintenance idea, in order that customers may understand that price maintenance means trade stability and general fairness instead of higher prices.

After Poor Payers

18—Recommending some arrangement whereby it can be made possible for dealers to collect accounts from government employees. They cannot now be sued, although it is stated that officers are required by the government to pay all debts before going overseas.

19—Recommending that the rate of 25 per cent, which is placed on the value of land and premises of all retail merchants, so as to ascertain the amount of business tax that they now pay, be reduced to 10 per cent of the assessed value, instead of 25 per cent.

20—Favoring a lien law.

21—Favoring the application of the bulk sales act to retailers as well as to wholesalers.

22—Recommending that members take advantage of the insurance policy examing department of the association.

23—Against avoidance of the anti-trading stamp act by retailers who substitute guessing contests and other schemes.

24—Favoring the extension of express service facilities in some form to those districts which are not now being served by express companies.

25—Against cities going into the retail business, in selling to the public.

Who Pays the Freight?

26—That retailers specify when ordering whether they wish to pay freight and cartage charges. At present some pay and some do not. Also, that the retailers' association be consulted by the railways before rate changes are made.

27—Recommending to members the credit reporting bureau of the association, which reports delinquents to members.

28—Recommending that the retailers, credit men and bankers be permitted to have a joint hand in the framing of a proposed bankruptcy act, so that the retailers may be protected.

29—Urging wholesalers to investigate before opening dealer accounts, as some accounts are believed to have been opened at dealer rates with customers who are not dealers.

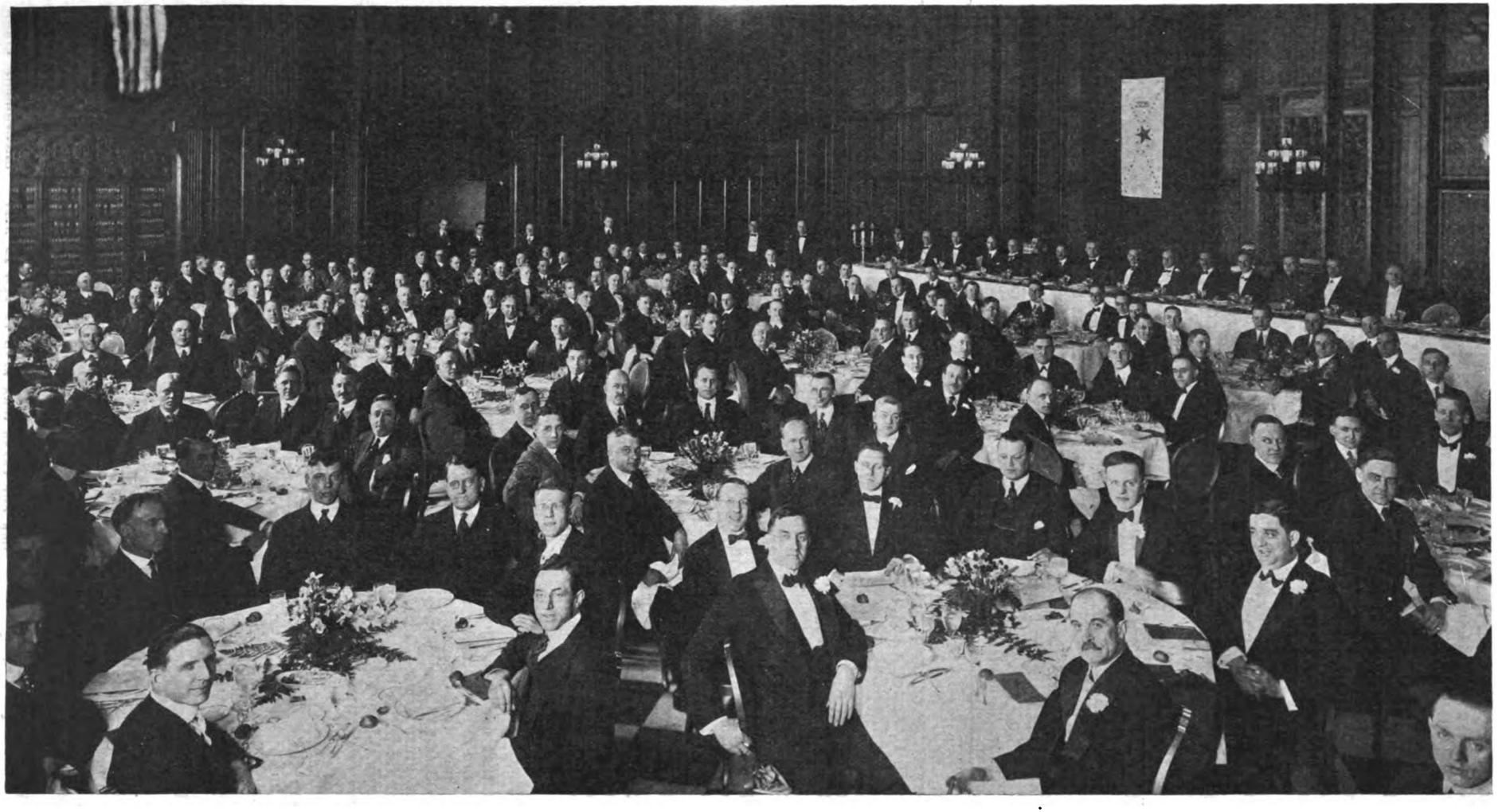
30—Asking manufacturers to leave off the retail price of the goods, in case the goods are generally used by price-cutters as a bait to the public.

31—Recommending a law to require a government standard for paint and a label on each can stating the ingredients.

(*Continued on page* 15)

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Chicago Dealers Hold Big War Dinner



It was their annual get-together dinner, but this time it was made a patriotic affair, and just as midnight struck the roar of cannon cut short the speaking and they all stood and sang "The Star-Spangled Banner." This was the way Chicago and its motor car trade ushered in the Third Liberty Loan

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Chicago Exchanged Car Show Gives Line on 1918 Used Car Conditions

Prices Really Are Higher—Market Conditions Are Firm—Rebuilding Pays—Problem Can Be Solved by Business-like Treatment

Chicago's Used Car Shows, This Year and Last

Cars sold, 1917	219
Cars sold, 1918	219
Value, 1917	$177,045
Value, 1918	193,775
Gain, 1918	16,730
Total attendance, 1917	15,420
Total attendance, 1918	18,120
Paid attendance, 1917	7,368
Paid attendance, 1918	3,368
Passes distributed, 1917	300,000
Passes distributed, 1918	1,000,000

CHICAGO, April 8—Now that Chicago's second annual exchanged car show is over it is possible to get a line on the real situation in the 1918 used-car market.

For some months the trade has talked about the higher prices that used cars would bring this summer. The show has demonstrated that this is a fact and not a theory, although there was every ground for the theory beforehand.

A study of some of the figures shows that a car that was a year old last summer sells for about what it did last summer despite the fact that it is two years old now.

Furthermore, in figuring the depreciation on cars, the 1918 price of a car should be used in figuring two years' depreciation. Let us explain this statement.

Supposing a manufacturer has continued his model A—as many have—without much change for two or three years. Last year it may have sold for $1,000. This year the same car may be selling for $1,500. Let us say that a two-year-old car is worth 60 per cent off the original list. In the case of this model A, now two years old, the original list was $1,000, but the list to-day is $1,500. Therefore, in figuring the 60 per cent depreciation for two years of service it should be figured on the $1,500 price and not on the $1,000 price which the car brought when new.

It is not to be understood from the foregoing explanation that the percentage to be used on two-year-old cars is 60 per cent. The percentage is explained elsewhere in connection with the republication of the Motor World Used Car Chart that was first printed a year ago. The chart is still good except that in place of the original lists the 1918 list should be used.

To illustrate by a few typical sales: At the 1917 Chicago used-car show 19 1916 Dodges sold for an average of $615. At the 1918 show four of these same models, now one year older, sold for an average of $640, which is an increase of 4 per cent for the same cars now one year older. The Dodge is the best car from which to secure these figures because it represents a standard of value and is a ready seller. It has but the one type, whereas some other lines have several types, which makes it difficult to obtain true figures due to the data that are sometimes lacking.

The upward trend in the whole new car field has had much to do with used car values. Everything tends to be higher even though the list price of a particular car has not been raised.

Two things affect used car values: The comparison of the used car with its own 1918 price and a comparison with the generally elevated plane of all new car prices.

For example: Supposing the price of a certain car has not been raised. It nevertheless is elevated somewhat in the used car field because of the general upward trend in used car values, but it is not worth as much more in proportion

Some of the Sales at the Chicago Exchanged Car Show

All These Cars Are Rebuilt and in A-1 Condition

Haynes Touring, 35-T	$800
Studebaker E D Touring	600
Maxwell Roadster, 1916	425
Buick Touring, 1917	825
Hudson Touring, 1917	1,100
Auburn Touring, 1916	400
Paige Fairfield Touring	1,000
Paige Fairfield Touring	875
Studebaker Touring, 1917	750
Studebaker Touring, 1917	595
Hudson Sedan, 1916	1,350
Mitchell Touring, 1916	750
Oakland Sedan, 1917	875
Chalmers Touring, 1917	600
Maxwell Sedan, 1917	750
Oldsmobile Touring, 1916	675
Overland Touring, 1916	475
Dort Sedanette, 1917	800
Cole Touring, 8-60	1,350
Grant Touring	800
Paige Fairfield Touring	875
Oakland 34 Touring	800
Hupmobile Roadster N 16	700
Cole 7-passenger 8-62	1,500
Hudson Phaeton Super-Six	1,350
Ohio Electric, 1917	1,750
Briscoe Touring, 1917	550
Willys-Knight Coupe 84	1,050
Overland Touring 4-83	500
Oakland Taxi	1,250
Dodge Touring, 1917	760
Reo Touring, 1917	800
Detroit Electric Brougham 48	1,550
Chandler Touring, 1916	800
Buick Roadster, 1916	750
Marmon Speedster, 1915	2,300
Overland Touring, 82	550
Winton Touring, 1914	750
Chevrolet Touring, 1917	650
Briscoe Touring, 1917	600
Overland Country Club, 1917	650
Paige Fairfield Touring	1,000
Mitchell Touring, 1916	850
Chalmers Touring 6-30	900
Hudson Cabriolet 6-40	900
Mitchell Touring	700
Cadillac Coupe	750
Grant Touring K	825
Marmon Touring 41	$1,350
Buick Touring, 1917	825
Elgin Touring, 1917	900
Saxon Touring, 1916	550
Elgin Sedan 6-8-17	1,250
Overland Roadster 83	400
Reo Touring, 1916	775
Reo Touring R	750
Paige Touring	775
Briscoe Touring, 1917	575
Overland Touring 85-4	600
Hudson Phaeton, 1915	1,950
Paige Fairfield Touring	775
Paige Touring	1,000
Maxwell Roadster, 1916	475
Mitchell 7-passenger	875
Briscoe Touring	525
Studebaker Touring, 1915	575
Chalmers Touring 32-B	725
Jordan Touring, 1917	1,500
Studebaker 7-passenger	600
Patterson Touring, 1917	750
Locomobile Touring, 1912	500
Dodge Touring	750
Paige Touring, 1915	500
Buick Touring, 1916	800
Dodge Touring, 1916	650
Dodge Sedan, 1917	1,190
Hudson Super-Six Limousine	1,900
Empire Touring	450
Jeffery Roadster, 1917	800
Franklin Touring B	1,450
Saxon Touring, 1916	575
Ford 1916 Roadster	275
Empire Touring, 1916	450
Hudson Phaeton, 1915	875
Cole 2-passenger, 1916	750
Cole Touring 8-60	1,350
Studebaker Touring 18-6-E	800
Oakland Touring	800
Chandler Touring, 1917	1,100
Paige Fairfield	1,900
Overland Touring 86	650
Overland Touring 85-4	600
Dodge Touring, 1917	850
Dodge Coupe, 1917	1,190
Chevrolet Roadster	200
Paige Touring	1,000
Chalmers Touring	800
Hudson Super-Six Phaeton	1,350
Hudson Phaeton, 1914	$750
Saxon Roadster, SQR	650
Empire Roadster 60	795
Paige Fairfield Touring	875
Cole Touring	875
Dodge Touring, 1916	645
Dodge Touring, 1917	775
Dodge Touring, 1916	665
Oldsmobile Touring, 1916	850
Hudson Super-Six Sedan	1,800
Chevrolet Touring, 1917	450
Paige Fairfield Touring	875
Paige Fairfield Touring	1,000
Buick Touring, 1917	900
Detroit Electric Brougham	1,550
Elgin Roadster 6-16	650
Pathfinder Touring 7-B	800
Studebaker Touring, 1917	725
Grant Roadster, 1916	475
Hudson Cabriolet 6-40	900
Hupmobile Touring	900
Hupmobile Touring K	700
Dodge Touring, 1915	500
Dodge Touring, 1916	600
Winton Touring 21	1,450
Winton Touring 22-A	2,250
Scripps-Booth Roadster	550
Patterson 1916 Touring	750
King Touring	425
Oakland Touring 32-B	625
Oakland 7-passenger 50	1,000
Hupmobile Touring N	1,000
Overland Club Roadster, 1917	675
Chevrolet Touring, 1917	450
Case 5-passenger, 1915	500
Mitchell Touring C-7-42	1,000
Paige Fairfield Touring	1,000
Cole Touring 4-40	550
Overland Touring 83	425
Hudson Phaeton, 1914	750
Oakland Touring, 1917	850
Paige Touring 6-54	900
Haynes Touring 37	1,300
Davis Roadster F	700
Chalmers 1916 Touring	600
Chandler Touring, 1917	1,100
Overland Coupe 85-4	875
Overland Touring	450
Packard Limousine, 1914	1,500
Kissel Sedan, 1917	1,300

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as are cars the prices of which have been increased new.

More than ever the Chicago show has demonstrated the value of rebuilding or fixing up used cars that are taken in trade. Last year there were some cars that might have been fixed up more. This year there was hardly a car in the show that didn't look just about as good as any new car. The cars looked as well as a new car that has been driven a couple of weeks.

One dealer was found to have a competing make in the show in bad condition. He was using it as a horrible example. A polite request from the management caused him to remove the car from the show, and everything moved happily thereafter.

Salesmanship provides one of the good methods of avoiding losses on used cars. One exhibitor had a Packard that the committee and himself had entered at $1,500. Exhibitors were supposed to sell their cars at the prices marked on them.

This exhibitor finally decided, after several attempts at a sale, that the price was too high. He wanted permission to mark it down to $1,200. He entered into a spirited controversy with the management, and hardly knew what to say a few minutes later when he went back to his exhibit and found that in his absence the salesman had sold the car for the listed $1,500.

Last year Motor World said that the Chicago show demonstrated that to handle used cars successfully dealers must:

1—Take them in at a right price.

2—Fix them up and make them really usable.

3—Sell them at a price that would make a profit or at least prevent a loss.

If that fact was demonstrated that year it is more than demonstrated this year. It is the only way to handle the used car situation. The dealer must first determine how much it will cost to refit or rebuild the car that is offered in trade. He must then determine what the car will bring in the market when in good condition. He must then deduct from this market value the cost of overhaul and the selling expense. This gives him his allowance. Any other way is mere guess-work.

Chicago has developed some mighty good used car departments. After the show Saturday night the used car managers had a dinner downstairs in the Coliseum. There were about 30 of them —everyone an expert. It is these men who are solving Chicago's used car problem, with the backing of the proprietors along Michigan Avenue.

When a car is to be taken in trade it is first appraised by the used car manager. He KNOWS what the car will bring in GOOD condition. He FINDS OUT how much must be spent to put it in GOOD condition. He also knows what it will cost to handle the car. From this KNOWN resale price he deducts the overhaul and other expenses and tells the new car department what can be allowed for the old car. With this method there is no guess-work. Every dealer should have a used car expert and should pay attention to what this man says. What's the use of having a used car expert if no attention is paid to his recommendations? If he says the car will sell for $600 rebuilt and that it will cost $100 to rebuild and sell it what is the sense in allowing more than $500 for the cars? If the used car man should make a mistake and bid too low take the profit yourself. Don't insist on giving it to the customer.

With used cars handled this way there is no used car problem. It simply adds extra merchandise to the dealer's line.

One other factor in the situation is the rate at which cars are selling. In Chicago and elsewhere sales are good. Just at present there is a strong demand. Some of the dealers sold as many cars before the show as they did during the show, and many have new car orders that they can't fill. They are driving cars and getting what they can by rail, but there is still that old-time pleasant sensation of an excess of orders.

One thing no one seems to know is whether this will continue all summer. In New York one dealer says he believes people are buying early this spring, and that he doesn't know whether it is paving the way for a slump later in the summer.

Under those conditions it seems wise for the dealer to trade wisely and to make a profit on his used cars, rather than to figure on a mere even break. Later, if there should prove to be a new car shortage, due to a heavy early summer sale, the used cars would fill in nicely if there were a good stock on hand, and especially if they had been taken in at a price that would permit their sale at a profit.

Salesmanship is one of the factors that should not be overlooked in the used car show—or the used car business.

Those exhibits that were attended by good salesmen sold cars, and some of those not so well attended did not do so well. In the show was one salesman who was à champion stand-and-look-and-say-nothing type. In another exhibit was a salesman who dropped in to work a few hours, and did so well he decided to stay at the show instead of at the salesroom.

As a general rule the sales work was well handled, but it is apparent that with a used car show on the dealer who works intensively will get the results while the man who doesn't believe the show is an opportunity won't get them.

As was the case at the first show, there were about as many cars sold in the salesrooms as at the show. Many times a prospect would not be just suited with a car in the show and would be taken to the salesroom where there was a greater variety and a better opportunity to concentrate the buyer's mind on the sale.

Why Chicago's Exchanged Car Show Was Successful

SEVERAL cities have tried used car shows, but with small success. Chicago has held two and each has been successful.

There are several reasons for Chicago's success. A mighty big reason is that it has an enormous population upon which to draw. It can sell more cars than could be sold in a smaller town. Of course, the show in the smaller town might not cost so much for rent and other expenses and the returns might be worth while. A study of shows held in other cities, however, indicates that they have not been held strictly on Chicago lines. It is also well to add that a slight slip in some respect may spoil the whole result.

Reason No. 2 is the method of admitting cars, the inspection committee. In some of the shows that have been successful there has not been much care exercised in admitting cars. Chicago set out in its first show to make the public respect the used car business, and it has operated ever since with that ideal in mind.

Elsewhere in this story are shown the forms used by the inspection committee, consisting of A. D. Mortimer, chairman, Haynes; E. E. Ross, Hudson, and Willard McAllister, Mitchell. Mortimer was made responsible. He would admit no car that did not check up O. K. in all points, and if the price was not right that had to be corrected too. The result was that the show looked almost as good from a car standpoint as a new car exhibition.

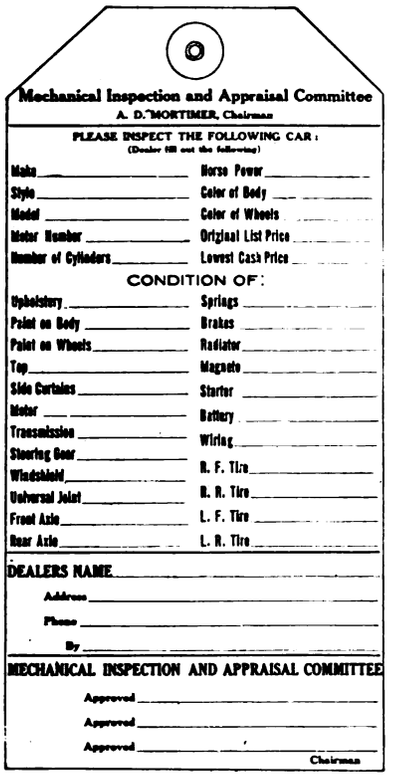
Some used car shows have admitted "crocks," have not kept the shows clean, have permitted gasoline and oil in the cars, have let them run on the show floor and fill the building with smoke, and have given the entire show a rather "crocky" atmosphere. This is something that must be avoided.

Reason No. 2 is the promotion. Chicago spent $6,000 in newspapers, tickets, etc. Last year 300,000 tickets were distributed free. This year 1,000,000 were distributed. They were sent to prospect lists, to corporations and through every avenue that would insure a wide distribution. Then a charge of 25 cents was, as usual, put on the gate. This kept out the kids and the undesirables. Nobody had any trouble getting in if he made an effort to get a ticket somewhere, but the public could not saunter in and out at will. And with every ticket there was a war tax of 3 cents.

While the sales at the show were up to par some were of the opinion that billboarding in the country for a few hundred miles might have brought in more farmers.

Also, the management of the show was turned over to a show manager, Thomas P. Convey, who managed last year's show. An outside manager, or at least one who is impartial, and who knows the show business, is an essential.

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Mechanical Inspection and Appraisal Committee
A. D. MORTIMER, Chairman

PLEASE INSPECT THE FOLLOWING CAR:
(Dealer fill out the following)

Make _____ Horse Power _____
Style _____ Color of Body _____
Model _____ Color of Wheels _____
Motor Number _____ Original List Price _____
Number of Cylinders _____ Lowest Cash Price _____

CONDITION OF:

Upholstery _____ Springs _____
Paint on Body _____ Brakes _____
Paint on Wheels _____ Radiator _____
Top _____ Magneto _____
Side Curtains _____ Starter _____
Motor _____ Battery _____
Transmission _____ Wiring _____
Steering Gear _____ R. F. Tire _____
Windshield _____ R. R. Tire _____
Universal Joint _____ L. F. Tire _____
Front Axle _____ L. R. Tire _____
Rear Axle _____

DEALERS NAME _____
Address _____
Phone _____
By _____

MECHANICAL INSPECTION AND APPRAISAL COMMITTEE
Approved _____
Approved _____
Approved _____
Chairman

How Chicago's Exchanged Car Show Inspection Committee Works

When a dealer wishes to enter a car in the show he fills out the tag shown at the left. This must be filled out in detail according to the condition in which the dealer judges the car to be.

He then takes the car to the inspection place.

The committee enters the car's number, model, year, motor number and all other identifying marks in a book.

The committee takes the tag off and checks the car over. Where it finds the dealer's estimate is correct it OK's the notation. If any part proves not to be up to what the committee considers good condition it notes its exceptions on the back of the card.

For example: If the finish were not good this would be noted. If the steering wheel had play this would be noted. The car would then be sent back to the dealer with instructions to do certain work.

After the work has been done the dealer may ask for another inspection. The Chicago dealers have found that the committee is very firm, impartial and expert. Nothing gets by unless it is right and there is no favoritism.

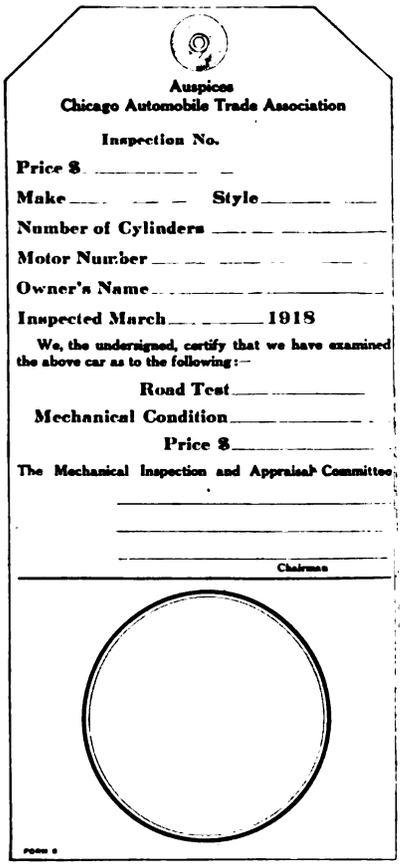
When a car has passed it is taken by the dealer to the show building. Here the committee checks it against its record book to make sure it is the same car that was inspected.

The committee checks all the noted exceptions again, makes sure everything is all right, and then admits the car to the building.

Here the tag shown at the right is attached to the car and the tag at the left is removed. The car may now enter the show.

When a car is sold the tag at the right is replaced by a "sold" tag, and no car can be removed unless so tagged. It is permissible, however, to take an unsold car out provided another is put in. The circle is for the official stamp of the Chicago Automobile Trade Association.

The year of the car is not noted on the tags, because this tends to create a false value. The used car experts who handled the situation say the show forcibly demonstrates the fallacy of yearly model designation, as it often tends to belittle the miles of service that remain in the car.


Auspices
Chicago Automobile Trade Association

Inspection No.

Price $ _____

Make _____ Style _____

Number of Cylinders _____

Motor Number _____

Owner's Name _____

Inspected March _____ 1918

We, the undersigned, certify that we have examined the above car as to the following:—

Road Test _____

Mechanical Condition _____

Price $ _____

The Mechanical Inspection and Appraisal Committee

_____

_____

_____
Chairman

Ontario Dealers Organize

(*Continued from page* 11)

LIST OF DELEGATES PRESENT AT CONVENTION OF ONTARIO DEALERS

J. M. Hunt, Dunlop Tire & Rubber Co., London; G. B. McLean, Chevrolet, Barrie; C. H. Bulby, McLaughlin, Barrie; E. W. Stickney, Dodge, London.

S. Ryding, Dominion Radiator Co., Toronto; P. C. Evans, A. Schrader's Son, Ltd., Toronto; J. R. Skinner, Dominion Battery Co., Toronto; C. M. Orr, Aikenhead Co., Toronto; W. H. Morgan, Canadian General Electric Co., London; W. S. Ishrund, Champion Ignition Co., Flint, Mich.; C. C. Stuart, Champion Ignition Co., Flint, Mich.

S. H. Rowed, Ontario Garage & Sales Co., London; H. A. Warren, accessories, London; J. C. Hunt, Dorchester; W. E. McCutcheon, Thorndale; A. Wilks, tires dealer, London; R. T. Wright, Thorndale.

J. E. Fawker, London; B. Cain, London; J. C. McLaren, accessories, London; F. O. Robinson, Canadian General Electric Co., Toronto; Ray W. Sherman, *Motor World*, New York.

William M. Cumming, Hyslop Bros., Toronto; H. A. Harrison, Hyslop Bros., Toronto; A. M. Bottcher, Hyslop Bros., Toronto; C. Willson, garage and accessories, Poplar Hill; Cecil Dixon, Hyslop Bros., Toronto; B. F. Rollins, Motor Products Corp., Walkerville.

Joseph J. Duffus, Petersboro; R. V. Donaldson, Canadian Fairbanks-Morse Co., London; E. Artendale, Hyslop Bros., Toronto; T. W. Hodgins, London; William Allan, Marathon Tire & Rubber Co., St. Catharines.

W. J. Murray, S. F. Bowser & Co., Toronto; B. W. Fox, Toronto; W. M. Gladish, *Motor Trade*, Toronto; H. G. Soules, Canadian Fairbanks-Morse Co., Toronto; W. H. McLean, B. F. Goodrich Co., Toronto; R. A. Tuck, B. F. Goodrich Co., Toronto; W. W. Aikinson, B. F. Goodrich Co., Toronto; F. P. Brockman, tires, London; H. B. Howell, B. F. Goodrich Co., Toronto; J. E. Fawkes, Studebaker Corp., London; G. C. Keith, *Motoring*, Toronto.

A. K. Johnson, Unusual Auto Washer, Toronto; C. K. Nelson, Splitdorf Electric Co., Toronto; R. J. Grossi, Cutten & Foster Co., Toronto; R. J. Goudy, Dominion Auto Co., Toronto; B. H. Sills, Rite Lite Co. of Canada; J. F. Shatford, Imperial Oil Co., Toronto; H. W. D. Foster, Cutten & Foster Co., Toronto; J. B. Cane, Gibson Electric, Ltd., Toronto.

J. C. Beemer, Beemer & Co., Ltd., London; Fred W. Evans, Canadian Fairbanks-Morse Co., Toronto; J. G. Lucas, hardware and metal, Toronto; B. W. Ziemann, Ontario Provincial Board, Preston; W. C. Miller, secretary, Toronto; W. W. Williams, organizing secretary, Toronto; T. H. Hamilton, Grand Valley; J. S. Potter, Pottenham.

D. T. Scott, Jno. Millen & Son, Ltd., Toronto; A. E. Wilks, Canadian General Electric Co., Toronto; C. J. Hawthorn, Canadian Fairbanks-Morse Co., Brantford; T. Clough, Canadian Fairbanks-Morse Co., Toronto; C. H. Watkins, Jno. Millen & Sons, Ltd., Toronto; A. E. Moffatt, S. F. Bowser & Co., Toronto.

W. H. Livingston, Livingston Bros., Hamilton; W. A. Shaw, Columb. Tyres Imp. Co., Toronto; T. A. Beach, Northern Electric Co., Hamilton; W. S. Russell, Northern Electric Co., Toronto; John A. Yarker, Ker Carb. Ltd., Toronto; W. J. Scott, Elmvale.

J. E. Shanan, Elmvale; L. L. Morgan, Toronto; Henry Angrove, Angrove Bros., Kingston; William M. Brennan, Auto Equipment Co., London; N. S. Reeson, Sparling & Reeson, Cobourg; T. C. Rankin, Dundas Garage, Cobourg; Joseph W. Ross, Hamilton Mirror Co., Hamilton.

W. C. Andrew, Streetsville; Arthur Sharp, Wolseley Motors, Toronto; F. G. Jones, Jno. Millen & Son, Toronto; F. B. Caswell, Champion Spark Plug Co., Windsor; Ray D. Kerby, McLaughlin Motor Car Co., Oshawa.

W. J. Daly, Goodyear Tire & Rubber Co., Toronto; R. M. Russell, Goodyear Tire & Rubber Co., Toronto; George Hillmer, Hillmer Bros., Oakville; H. Galbraith, Canadian Fairbanks-Morse Co., Toronto; E. A. Kennedy, Miller Tire Shop, Toronto; J. P. Johnson, Universal Auto Washer Co., Hamilton; Jack Ether, Hamilton Auto Supply Co., Hamilton; W. H. Cooper, U. S. L. Storage Co., Toronto; F. B. Chester, Champion Spark Plug Co., Windsor; R. E. Ankerman, Chesley.

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GHOSTS

That Are Unemployed

By Ray W. Sherman

THIS is the fifth of a series of six articles. Others in the series are:

1—The Man Who Was a Slacker
2—The Horse Without a Rider
3—The Locked Door
4—The Street Without a Name
6—The Invisible Ink

"HAVE you got the envelopes addressed yet for those circular letters we were going to send out to your car prospect list?" asked Reilly of Miller, his dealer in Merrylton.

"No, I haven't got them done yet," admitted Miller as he played with a paperweight on Reilly's desk.

"Well, when are you going to get them done and get them down here so we can get this thing started?" demanded Reilly.

"I'll get 'em down next week," said Miller. "You see, I have been pretty busy. I have had to fix all those broken windows you told me about and put in an accessory display case, and I have been doing so darn many things that I haven't had time to get at this job."

"Well, when do you expect to get started?" asked Reilly.

Is It Worth While?

"Do you really think it's worth while sending out all these letters?" queried Miller. "Don't you think it is quite an expense and that it doesn't bring in the returns that some folks think it does?"

"What do you mean, expense? You've got to spend money for something, haven't you, if you are going to get any business?"

"Yes, I know, but all these letters cost money every time you send them out, and a lot of the people you send them to will never buy cars anyway."

"Well, if that's the case, you might as well sit up in your door on a chair in the sunshine and wait for people to come along and buy your stuff, and if you think you can get rid of twenty cars this season that way, why, hop to it. I am willing. The one thing that I am anxious about is that you get rid of these twenty cars. If you do that, you can make some money for yourself and for me and for the Sennett. We've all got to make money this year.

"These form letters are one of the most important factors of your business, no matter whether you see it that way or not. By yourself you can make only so many calls on a prospect, but with letters you can make any number of calls. There is no limit.

Reaching 100 People at One Time

"Furthermore, a letter can go where you can't go. A letter can walk into a farmer's home in the evening after he has done his chores and is reading the paper and can talk to him and say things to him that you couldn't impress upon him if you tried for a hundred years, and a letter can do that same thing that same evening with a hundred customers. How long would it take you to call on a hundred people?"

"Well, it would take quite a while," agreed Miller.

"Certainly, it would take quite a while. And after you had gotten all through the results of your work wouldn't be as effective as they would be if you sent out a hundred good sales letters. You should always use sales letters to supplement your personal sales work. If you go and call on a man and make a certain statement maybe it impresses him and maybe it doesn't, but if the same thing comes along in a letter, he then remembers that it is exactly the same thing you told him when you were talking to him, and he reads it over when there is no one around to bother him, and it makes more of an impression upon him sometimes than anything could that you could say.

"A form letter is just like a sort of a ghost or a spirit that creeps into the man's home when he isn't looking and influences him towards buying your car. They keep pushing at him and pulling at him and telling him that the Sennett is a good car, that he ought to have a car, that you are a good dealer, that a lot of other people in the territory are using Sennett cars, that they all like their cars, that the Sennett factory is a wonderful factory, that it has been in business for years, it is a highly reliable institution, and that he really can't afford to get along any longer without one of these cars.

"The letters keep telling him that sort of stuff and before he knows it he begins to believe that a lot of it is true, no matter whether it is or not. And each time that his belief becomes a little stronger it makes it all the easier for you when you go round to make personal calls on him. Then, finally, some day one of your personal calls is going to do the trick and you are going to get the man's order.

Unseen Influence of Form Letter

"On the other hand, if you don't use form letters your calls on the man are necessarily few and far between. You may call on one man every day, but you can't call on many people that often because you haven't the time. Your physical limitations are too great. All this unseen influence of the form letter is a mighty power that you can put to work for you at a small cost if you will only set about it.

(*Continued on page* 52)

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Ghosts That Bring Results



Like ghosts of past desires, the sales letters you have been constantly sending your prospects will eventually help you to sell the cars they have long wanted

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A Department of

BETTER MECHANICS

No. 63

Stationary Shop Equipment and Standard Tools

THE technical service department of the Packard Motor Car Co. has made a careful analysis of the shop equipment most essential to efficient work, and has prepared lists showing what equipment is desirable to purchase with the money at hand.

About the first thing that a shop owner desires to know is the equipment most necessary for his use. This depends largely upon the size of the shop, the number of cars requiring service, or whether replacement of parts or actual repair is to be made. The usual method is to purchase in a more or less hit or miss manner until the amount of money at hand is invested. The four following lists are based on investments of $5,000, $2,500, $1,000 and $500 respectively, and are so balanced that practically all of the necessary service work to be done may be handled.

In no sense of the word is it to be understood that the prices given are absolute. To-day prices are changing so fast that such a list is impossible. However, the price given is the average price at which the equipment may be purchased from any reliable machinery house.

$5,000 List

	Price
5-hp. electric motor	$210.00
Shafting, pulleys and brackets	50.00
Belting	60.00
Hydraulic press for truck tires	700.00
Acetylene welding and carbon-burning outfit	60.00
Battery charging and repair outfit	300.00
Lathe tools, shaper tools, reamers, files, jacks, etc.	145.36
Milling machine	1,155.00
Lathe	595.00
Shaper	500.00
Drill press, wheel and lever feed	90.00
Press	60.00
Heat treating furnace	110.00
Valve grinder and valve seat-reaming tool	30.00
Portable forge	22.50
Bench drill to ½ in.	24.00
Emery grinder and buffer, 10-in. wheels	29.00
Power hacksaw	16.75
Swivel bottom vise, 4 in. jaws (four)	36.00
Air compressor	50.00
Air hammer	50.00
Universal electric drill	91.00
Taper shank twist drills ⅛ in. to ¼ in., with Packard special size	20.52
Chain fall (two)	115.00
Taps and dies S. A. E. ¼ in. to ¾ in., with die stock and top wrench with special packing sizes	18.00
Voltmeter	75.00
Portable crane	125.00
Two engine studs (swivel jacks) at	110.00
Set of taps and dies from ⅛ in. to ¼ in., with Packard special size	6.00
Blow torch	5.20
Taper shank twist drills ⅛ in. to ¾ in., 1/64-in. graduations, No. 403 high speed	58.17
Reamer and attachments for broaching main bearings	250.00
Bending bars, crow bars, etc.	25.00

Blacksmith Tools

	Price
10-lb. striking hammer	$2.00
5-lb. striking hammer	1.00
Square flatter, per pound .20	
Hardie, per pound .20	
Hot chisel, per pound .40	
Cold chisel, per pound .40	
Bolt tongs, per pound $1.00	15.00
Angle jaw tongs, per pound .60	
Pick tongs, per pound .60	
Lathe tongs, per pound .60	
Swage block, per pound .10	
Wrecking truck	20.00
Breast drill	3.50
Solid box blacksmith vise, 4 in. jaws	9.00
Anvil (80 lb.)	8.00

$2,500 List

3-hp. electric motor	$160.00
Shafting, pulleys and brackets	40.00
Belting	40.00
50-T press for truck tires	100.00
Acetylene welding and carbon burning outfit	60.00
Battery charging and repair outfit	100.00
Lathe, tools, shaper tools, reamed files, jacks, etc.	108.25
Milling machine	700.00
Lathe	550.00
Drill press, wheel and lever feed	90.00
Press	60.00
Valve grinder and valve seat reaming tool	30.00
Portable forge	22.50
Emery grinder and buffer, 10-in. wheels	29.00
Swivel bottom vise, 4 in. jaws (two)	18.00
Solid box blacksmith vise (4 in. jaws)	9.00
80-lb. anvil	8.00
Air compressor	50.00
Engine stand (service jack)	55.00
Electric drill to ⅝ in.	91.00
Chain fall (one)	51.50
Taps and dies S. A. E. ¼ in. to ¾ in., with stock and tap wrench, with Packard specials	$18.00
Taps and dies U. S. S. ¼ in. to ¾ in., with die stock and tap wrench with Packard special sizes	18.00
Set of taps and dies from ⅛ in. to ¼ in., with Packard special sizes.	6.00
Blow torch	5.20
Taper shank drills, ⅛ in. to ¾ in., 1/64-in. graduations, No. 106 carbon steel	20.52

Blacksmith Tools

	Price
10-lb. striking hammer	2.00
5-lb. striking hammer	1.00
Square flatter, per pound .20	
Hardie, per pound .20	
Hot chisel, per pound .40	
Cold chisel, per pound .40	
Bolt tongs, per pound $1.00	15.00
Angle jaw tongs, per pound .40	
Pick tongs, per pound .60	
Lathe tongs, per pound .60	
Swage block, per pound .10	
Weaver wrecking truck	20.00
Breast drill	3.50

$1,000 List

2-hp. electric motor	$100.00
Shafting, pulleys and brackets	20.00
Belting	20.00
Acetylene welding and carbon burning outfit	35.00
Lathe tools, shaper tools, reamed files, jacks, etc.	33.70
Lathe	350.00
Drill press, wheel and lever feed	90.00
Press	30.00
Valve grinder and valve seat reaming	30.00
Portable forge	22.50
Emery grinder and buffer, 10-in wheels	15.00
Swivel bottom vise, 4 in. jaws (one)	9.00
Solid box blacksmith vise (4 in. jaws)	9.00
80-lb. anvil	8.00

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Air compressor	50.00
Chain fall	30.00
Taps and dies S. A. E. ¼ in. to ¾ in., with die stock and tap wrench, with Packard special sizes	18.00
U. S. S., same as above, without stock and wrench, with Packard special sizes	14.00
Set of taps and dies from ⅛ in. to ¼ in.	6.00
Blow torch	5.20
Taper shank drills, ⅛ in. to ¾ in., 1/64-in. graduations, No. 106 carbon steel	20.52

Blacksmith Tools

5-lb. striking hammer		1.00
Square flatter, per pound	.20	
Hardie, per pound	.20	
Hot chisel, per pound	.40	
Cold chisel, per pound	.40	
Bolt tongs, per pound	.20	10.00
Angle jaw tongs, per pound	.60	
Pick tongs, per pound	.60	
Lathe tongs, per pound	.60	
Swage block, per pound	.10	

Wrecking truck	20.00
Breast drill	3.50

$500 List

	Price
1½-hp. motor	$80.00
Shafting, pulleys and brackets	5.00
Belting	5.00
Acetylene welding and carbon burning outfit	35.00
Drill press wheel and lever feed	60.00
Press	30.00
Valve grinder and valve seat reaming tool	30.00
Portable forge	22.50
Emery grinder and buffer, 10-in. wheels	15.00
Swivel bottom vise, 4 in. jaws (one)	9.00
Solid box blacksmith vise (4 in. jaws)	9.00
80-lb. anvil	8.00
Chain fall	30.00
Taps and dies S. A. E. ¼ in. to ¾ in., with die stock and tap wrench, with Packard special sizes	18.00

U. S. S., same as above, without stock and wrench, with Packard special sizes	14.20
Set of taps and dies from ⅛ in. to ¼ in., with Packard special sizes	6.00
Blow torch	5.20
Taper shank twist drills, ⅛ in. to ¾ in., 1/64-in. graduations, No. 106 carbon steel	20.52

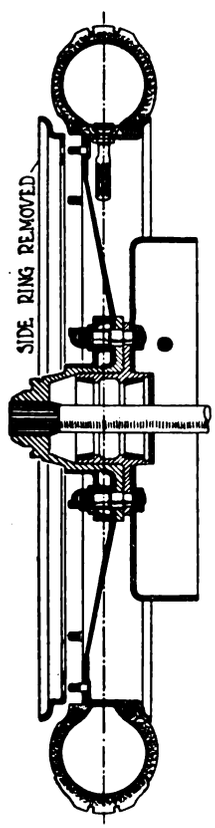
Blacksmith Tools

5-lb. striking hammer		1.00
Square flatter, per pound	.20	
Hardie, per pound	.20	
Hot chisel, per pound	.40	
Cold chisel, per pound	.40	
Bolt tongs, per pound	.20	10.00
Angle jaw tongs, per pound	.60	
Pick tongs, per pound	.60	
Lathe tongs, per pound	.60	
Swage block, per pound	.10	
Wrecking truck		20.00
Breast drill		3.50

Pressed Steel Wheels for Cars and Trucks

THE Detroit Pressed Steel Co., Detroit, has developed and is starting production on pressed steel disk wheels for passenger cars, trucks and tractors. The passenger car wheels are styled "Disteel wheels" and are of the single disk type, but those for trucks or tractors are either single or dual disk, depending on the size. Passenger car wheels may be demountable or may be fitted with demountable rims.

The wheel comprises a surprisingly few number of parts. A cast steel hub is fastened to the axle and in the manner required by the axle construction, and to this the steel disk is secured, slipping over the four studs on the permanent hub flange. The wheel is locked in place by a wheel locking flange which carries the four nuts and their lock washers in a self-contained unit. This system has been found better than that of holding the wheel in place by one large nut. Not only is less force required in removing and replacing the wheel, but also the possibility of the nuts setting in place is removed.



Left—Disteel wheel mounted on a ¾ floating type rear axle. The load line passes through the disk

Right — Disteel wheels conform harmoniously with the present type of body design, concealing brake bands and rods

The rim is integral with the dished steel flange and has an outer ring that is held in place by eleven nuts on the 34-in. type. This construction is noteworthy because of the extreme line-in of the parts without loss of strength and because the outer ring when removed leaves the casing entirely free.

Hubs of Cast Seel

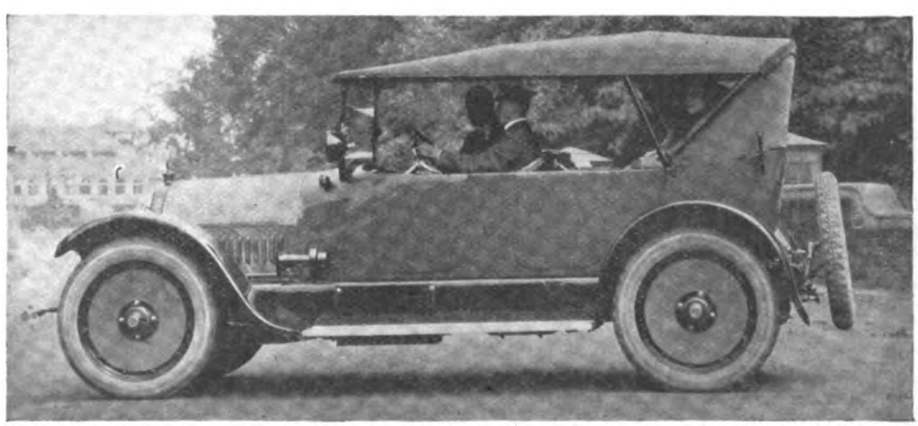
As stated, the hubs of these wheels are cast steel. The disk and rim are ordinary 25-point carbon blue annealed steel, the flange varying in thickness from 3/16 in. to 3/32 in. In general, it may be stated that the weight of the wheel is less than that of the universal of wood of the wire spoke type—including the hub installation.

Although it is not claimed that the wheel is not in any sense of the word a flexible wheel, the absolute rigidity of previous dual disk wheels is removed by the dished disk construction By this construction it will be noted that the load line crosses the disk, eliminating a concentration at any definite point. The load is carried both in compression and suspension over the entire surface.

Among the advantages claimed for this wheel are freedom from climatic effects, such as shrinking, swelling, cracking, etc., and the ability to endure shock without complete destruction, and if bent the wheels may be straightened without much difficulty. Because of the fact that all of the wheel is inside of the tire tread, it is much more protected from accident than either the wooden or wire wheel.

One previous objection to this wheel construction was that of appearance, and in this the Disteel wheel has removed much of the cause for complaint. The design harmonizes nicely with the present stream line and body lines, and pleasing color contrasts are possible on the wheel construction. And the disk effectively conceals all parts such as brakes, rods, etc.

At the present time the Detroit Pressed Steel Co. is only equipped to manufacture wheels for the following cars: Cadillac, Packard, Murray, Winton, Hale, Dorris, Jordan, Hudson, Peerless, McFarlan, Fergus, Olds, Hupp, King, Chalmers.



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Repairshop Shortcuts

From Motor World Mechanics

NO. 1619—RIVETER FOR LININGS

A tool for putting rivets in Ford transmission bands quickly and easily is made by fastening a curved piece of iron to a wooden block which is then fastened in the vise when in use. A handle is shackeled to the top of this piece of iron to give the necessary leverage. The plunger tube is spaced from the main post with babbitt and held by U-bolts. The plunger is automatically raised by a spring. The bottom of the main post is drilled out and a die which can be easily replaced if broken is fitted in the hole.—E. E. Bittinger, Springs, Pa.

NO. 1620—ELECTRICAL TESTING UNIT

A unit for testing circuits in coils, generators, ignition systems, etc., is made by constructing a box to contain six dry cells. A handle is fitted to it so that it can be easily carried. The cells are connected in series and flexible wires lead from the terminals. The positive lead is directly connected to the terminal. One negative lead is connected to the terminal and the other goes through a 6-volt, 2 candle-power lamp. In order to test any kind of wiring as to an open circuit, use the positive and the negative (1) wires, thus connecting the lamp in series with the dry cells, and if there is a complete circuit, the lamp will light. In testing on storage battery circuits, use wires negative (1) and negative (2) which leaves out the dry cell circuit.—E. C. Stillger, Olson Bros. Garage, Ithaca, Neb.

NO. 1621—TO PREVENT OIL LEAKAGE

To remedy oil leaking out of the engine rear bearing a flat strip is placed around the shaft, and this is held in place by a coil spring which is wrapped around it. The felt should fit closely and fill up the space between the flange and the bearing.—C. C. Spreen, Flint, Mich.

NO. 1622—FORD COIL TESTER

A convenient Ford magneto coil tester is made by using a regular double pole knife switch with two 10-amp. fuses. Four sockets are connected in parallel and an extra socket is cut into one of the branches, and in this socket is an attachment plug. Two ordinary ice picks with wooden handles form the terminals of the leads. Carbon bulbs of a 32 cp. are used. In testing the coil assembly it is necessary to unsolder the ground connection. By touching one ice pick to the coil winding and the other to any part of the frame, a short circuit will show itself by flashing or burning.—O. W. Hall, Hall Garage, Fort Collins, Col.

NO. 1623—AXLE OVERHAULING STAND

A stand particularly adapted to Ford rear axles is made from angle iron riveted or welded together. The top cross member is 3 x ⅜ x 14 in., which just accommodates the left half of a Ford rear axle. The pan is galvanized iron divided into compartments. The stand for the drive shaft housing is made of pipe fittings. Parts of a pipe vise are used to hold the axle housing firmly. Lag screws can be used to bolt the stands to the floor.—O. W. Hall, Hall Garage, Fort Collins, Col.

NO. 1624—FORD COIL TESTER

For testing Ford coil units a set of instruments is mounted on a board. The required articles are an alternating current ammeter reading from 0 to 2 amp., a transformer such as used for operating toy trains, an adjustable spark gap and a double pole single-throw knife switch. Metal terminals are so set as to connect with coil unit terminals. A coil in good condition should draw between 1.2 and 1.4 amp. and show a good hot spark at the spark gap and also operate without excessive flashing at the contact points. —O. W. Hall, Hall Garage, Fort Collins, Col.

NO. 1625—TRUCK FOR OIL BARRELS

A handy truck for barrels of oil can be made from wood. The uprights are 2 x 6 in., the diagonal braces are 2 x 4 in., and the top cross pieces are 2 x 6 in., with a notch cut in them the same radius as the barrel. Castors are fitted to the bottom so the barrels can be moved about.—C. C. Spreen, Flint, Mich.

NO. 1626—CHAIN BATTERY HANDLE

A simple and cheap storage battery handle is made from a couple of cross links from an old non-skid chain. They are linked together, the ends opened enough to slide over the handle of the battery, and tape wrapped around the center for a comfortable handle. The battery can be slipped into the box without skinning your hands.—Karl Koett, Leyman Buick Co., Norwood, Ohio.

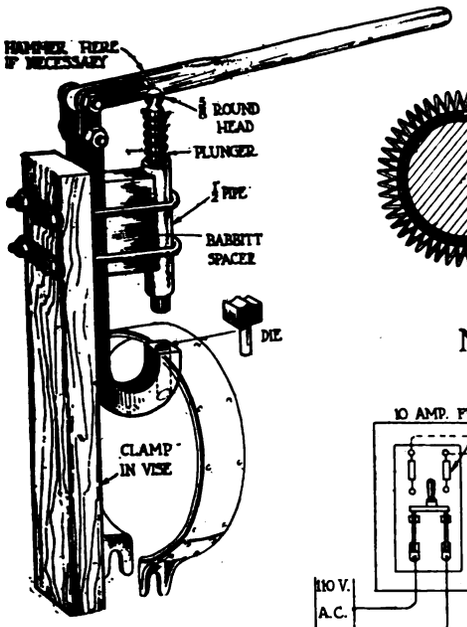
NO. 1627—FABRIC CUTTING KNIFE

A knife for cutting one layer of fabric at a time is shown. The work may be done by pulling or pushing the knife, the motion of the knife in each case being indicated by the arrow. Naturally the cutting point must be sharp.—Elizabeth Automobile Co. (Franklin), Elizabeth, N. J.

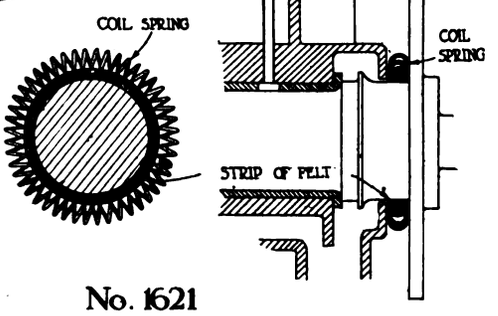
$1 a Shortcut

SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. MOTOR WORLD *will pay $1 for each Repairshop Shortcut that is accepted for publication. The only requirements are these: 1—Describe the shortcut briefly but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with, and the town. Write plainly. If your name is unusual, or if there might be any doubt as to the spelling of the name, print it in capital letters with your pencil.*

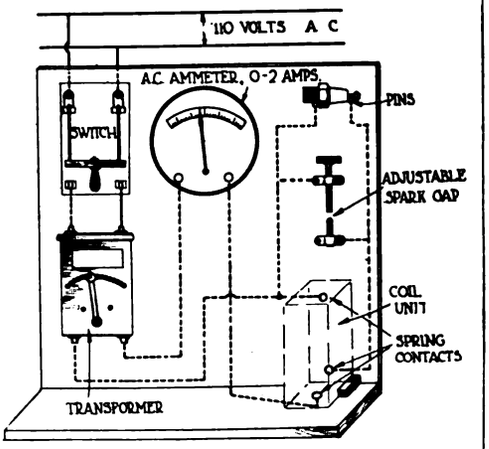
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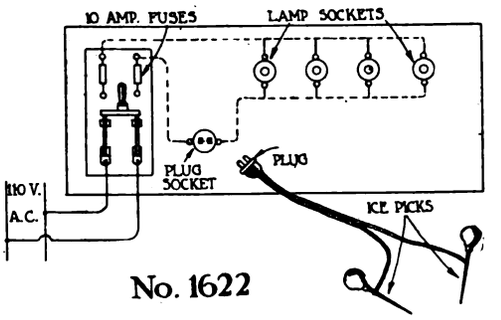
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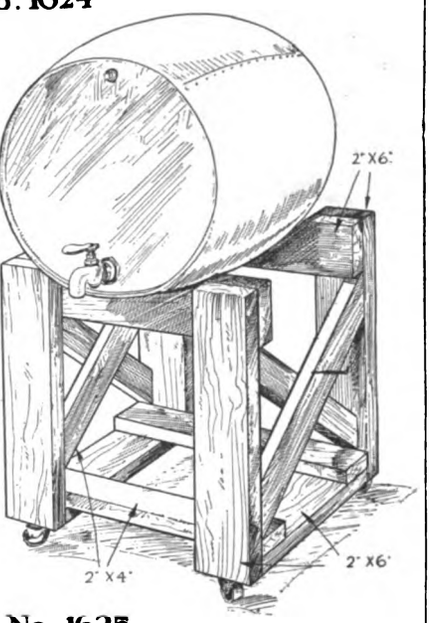
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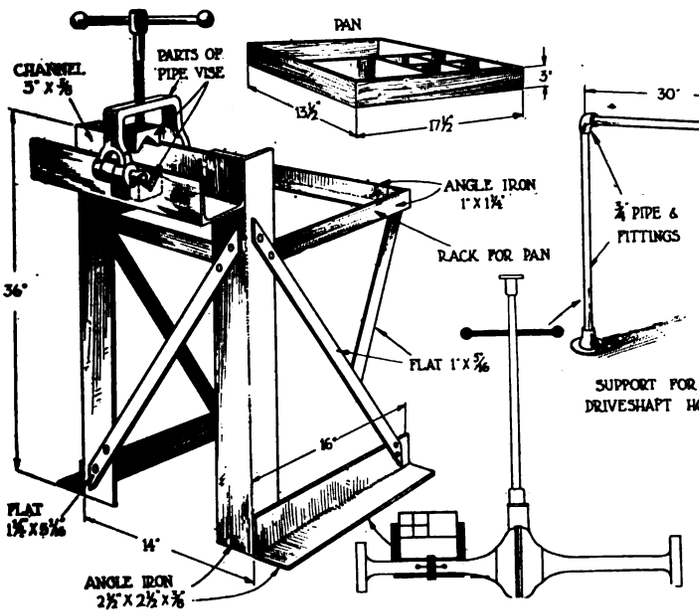
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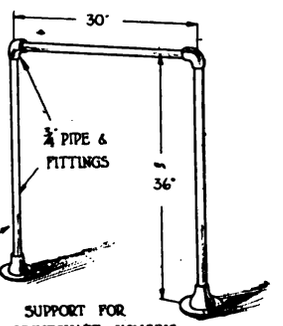


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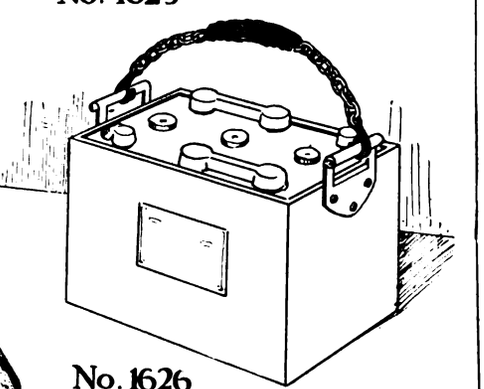


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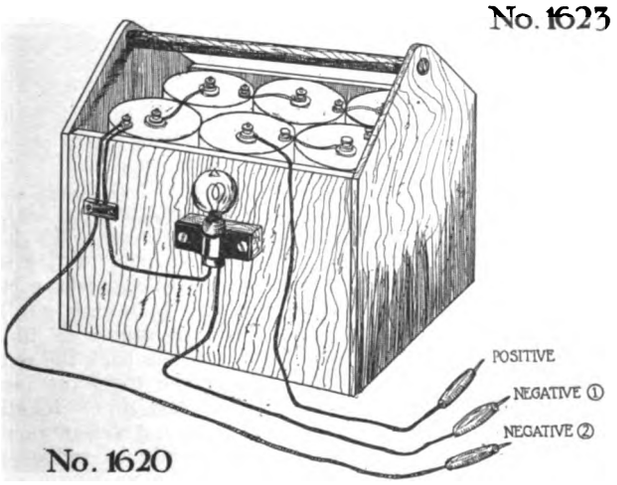




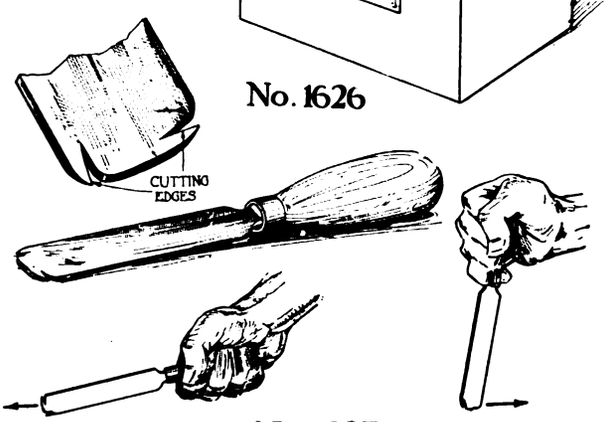
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DRIVE-AWAYS!

How Some Dealers Are Taking Hundreds of Cars a Month From Detroit

A fleet of twenty-six Paige cars ready for a drive-away to Philadelphia, March 23

DEALERS must drive away cars or they will not get them. Spring and the coming summer, with improved road conditions, usher in bigger business for dealers, and to be assured of good business the dealer must be prepared—be prepared with an ample supply of cars—a surplus stock that will not be exhausted before another supply arrives.

Dealers from all parts of the United States are traveling hundreds and sometimes thousands of miles—some over half way across the continent—to drive cars away from the factories.

Recently 250 cars left the Dodge Driveaway Garage, Detroit, in one day. Of this number four went to Jefferson, Iowa; two to Brookings, Iowa; three to Arkansas; six to Greenville, S. C.; eleven to North Platte, Neb.; five to Alva, Okla.; five to Stuttgart, Ark.; eight to Pratt, Ark.; nine to St. Louis, Mo.; six to Rocky Mountain, N. C.; four to Martinsville, Va.; three to Franklin, Va.; five to Marion, S. C.; four to Darlington, S. C.; five to Shawnee, Okla.; five to Quartertown, S. D.; one to Jackson, Miss., and five to Port Jervis, N. Y. The balance went to nearer points.

1500 Driven Away in Week

This simply illustrates what was done by only one factory in only one day. Similar programs are going on at other factories. Dodge Brothers sent out the third week in March an aggregate of 1400 cars; the week previous, 1500 cars. If this rate is maintained—and there is every indication it will be—March will show a great increase over the drive-aways in February. Those of the latter month exceeded the total of January. The drive-away system has come to stay.

Does a drive-away injure the cars? No! If properly handled, it is good for them. In these days of great production, it is almost physically impossible for a manufacturer to give a road test to two or three hundred cars every day. The drive-away serves this purpose. The stiffness of the motor is thus worn off, and when the car reaches the hands of a buyer it should be in fine running condition. Dealers are seldom heard to complain of a car brought to them in poor condition.

Paige Uses Paraffin Coat

Paige, for instance, applies a coating of paraffin to the body and greases the nickeled parts. Should any mud splash upon the car while en route, the varnish is still unharmed. When the car reaches its destination it is given a warm bath and it again looks like new.



The interior of the Dodge garage where the cars are housed pending departure

Dealers going to a factory to drive back cars usually take with them the required number of drivers. If they cannot secure a sufficient number in their own town they engage additional men at the factory. A number of dealers have been able to obtain men who were only too glad of the opportunity to drive cars for them, merely for the pleasure it affords the drivers. It offers them a vacation, and all they ask is expenses.

A systematic schedule is usually followed. The dealer when starting back with his fleet of cars leads the procession, the last car of which is driven by his most dependable mechanical man. It is essential that the first man know the best roads. With a 15- to 20-mile pace set by him, the others follow about 200 feet apart. The last man sees that none get separated very far or fall behind. A certain mileage for that day is determined at the start; that is, it is aimed to reach a certain town. When that point is attained the team puts up for the night at a hotel. Approximately 150 miles can be made in one day.

One to Two Dozen in Driveaway

The number of cars constituting a drive-away varies from one car to two dozen or more, but the most satisfactory seems to be not more than fifteen cars. This is a large enough number for the team captain to look after. To have more than fifteen occasions too great a delay at gas filling stations, where time is consumed not only in taking gas but waiting in line for the others to fill up. The delay of one car sets back the entire train. The smaller the train the lesser is the percentage of lost time. In other words, a fleet numbering fewer cars is more efficient and tends to reduce the time of travel.

Maxwell has hit upon a plan that is

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proving most satisfactory. With the aid of a trailing bar one driver can take charge of two cars. Ten cars now compose a team. This requires but five men, thus saving 50 per cent on labor cost. A fleet of this number can fill with gas and the men can eat a meal in a period of 1 hr. It has been demonstrated that these cars can travel 50 miles farther in one day than a train of fifty cars. These bars are supplied the dealers at $5 each, but they save the dealer 50 per cent of the railroad fare to get the men to the starting point of the drive-away, the food and lodging cost of these men, and their payroll. The trailing bar more than pays for itself. And there is another advantage in that it slows down the drivers to a limited speed of 20 miles.

Bonus to Drivers

Besides having dealer drive-aways, Maxwell engages in this work in its own behalf. The company maintains fifty drivers who are kept busy nearly all the time delivering cars to its various distributing warehouses. The rates paid the drivers are governed by the distance and conditions of the roads between the terminals. A premium is added for every car that is delivered in first class condition. Many dealers use this bonus system with great success.

Dealers are urged by the Maxwell company to take trucks with passenger cars wherever possible. This permits the loading of the passenger car on the truck and saves tire wear on one vehicle. Of the drive-aways from the Maxwell company 75 per cent is by dealers.

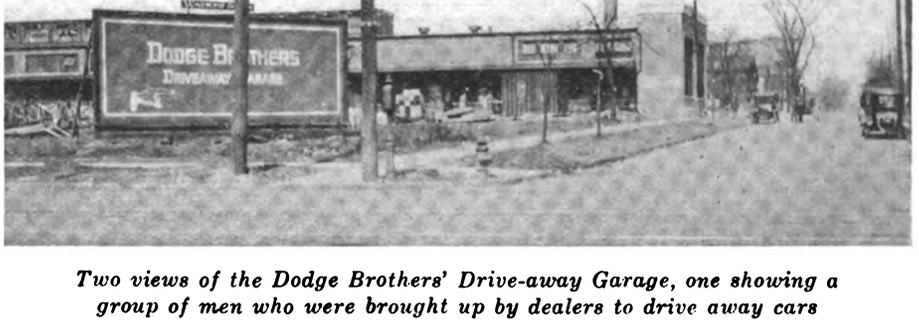
Paige Does Own Driving

The Paige drive-away is increasing weekly. Approximately 350 cars were driven away in February, and in March, it is believed, the total will reach 500. This company handles its drive-away system with crews engaged by the company but paid for by the dealers. With this system in operation it has been found that the cost for a drive-away to Pittsburgh from Detroit is only $7.50 per car more than the freight charge between these points. This company also has warehouses. They are situated in Kansas City, Atlanta, Dallas, Los Angeles, San Francisco, Portland, Ore., and Boston. To these the cars are freighted and the dealers in their re-

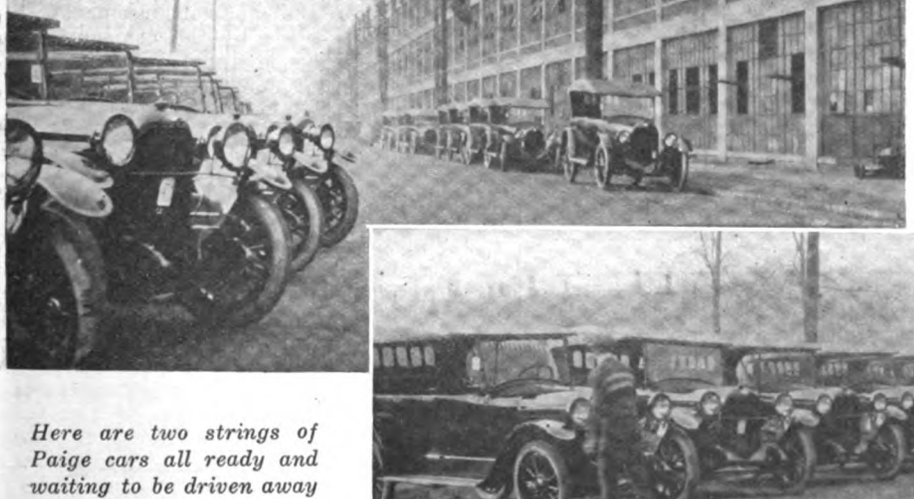


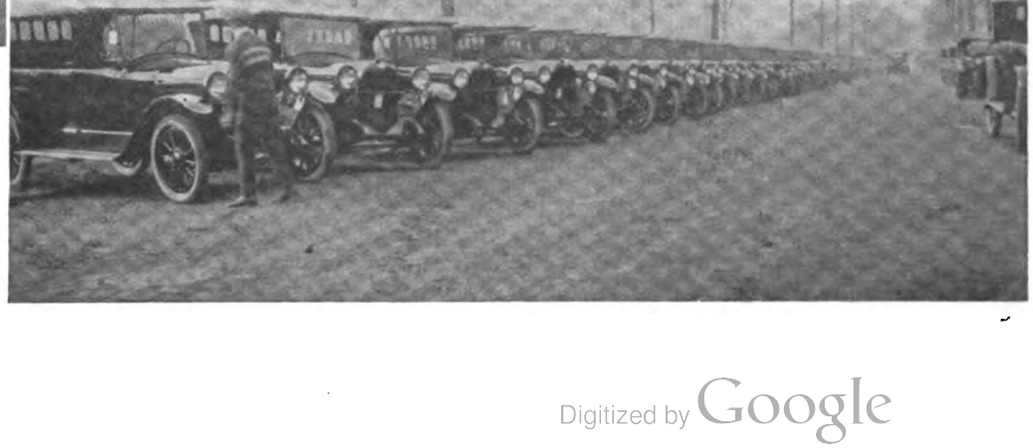
A dealer getting ready to start his drive-away with two Oldsmobiles and six Dodges





Two views of the Dodge Brothers' Drive-away Garage, one showing a group of men who were brought up by dealers to drive away cars





Here are two strings of Paige cars all ready and waiting to be driven away by dealers. More than 350 were driven away in February and in March nearly 500

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Maxwell cars and trucks just arriving at destination—Fairmont, W. Va.

Maxwell Motor Sales Corporation
(Overland Shipping Report)
Driver Must Make up Reports as per Foreman's Instructions

Full Name and Address: Dan Burns 167 Brooklyn Ave
Chauffeur's License No. #613595 What State Registered in Mich Years Experience 5
Type of Car Truck Serial No. 6245 Motor No. 135128 S. O. No. 89
Type of Car in Tow or Load on Truck Roadster Serial No. 221425 Moto No. 214857 S. O. No. 88

At destination Report Condition of Cars Separately as Follows: Serial No. 6245

Condition of Body	ok	Top	ok	Paint	ok	Windshield	ok
" " Lamps	ok	Fenders	ok	Radiator	ok	Tires	ok
" " Transmission	ok	Steering Gear	ok			Brakes	ok
" " Clutch	ok	Axles	ok	Battery	ok	Tools	ok
" " Ignition	ok			Lighting	ok	Starter	ok

State condition of Motor and Motor Troubles enroute or any other troubles not mentioned above, time lost and repairs and parts needed: ok

Report condition of Car in Tow or Load on Truck as follows: Serial No. 221425

Condition of Body	ok	Top	ok	Paint	ok	Windshield	ok
" " Lamps	ok	Fenders	ok	Radiator	ok	Tires	ok
" " Transmission	ok	Steering Gear	ok			Brakes	ok
" " Clutch	ok	Axles	ok	Battery	ok	Tools	ok
" " Ignition	ok			Lighting	ok	Starter	ok

State condition of Motor and Motor Troubles enroute or any other troubles not mentioned above, time lost and repairs and parts needed: ok

Describe accidents or any other matter not covered above on back of this sheet.

Give name and address of Dealer, Branch or Warehouse receiving goods: Gibson Warehouse - Indianapolis Ind

Party receiving goods O.K. above report and sign below.
Signature T. J. Drennan Time of Day 2-24 Date 4 P.M. 1918

SCHEDULE ON ROAD

		STARTING		NOON STOP		NIGHT STOP		Time Lost on Road	Mileage
		Time	City	Time	City	Time	City		
2-21	1st Day	5:30 pm	Detroit	1:30 pm	Ypsilanti	1 am	Clinton		55
2-22	2nd Day	8 am	Clinton	1:30 pm	Monroe	7 pm	Bryan		70
2-23	3rd Day	7 am	Bryan	1:30 pm	Ft Wayne	8:30 am	Marion		95
2-24	4th Day	6:45 am	Marion	Thru		2:45 pm	Indianapolis		80
	5th Day								
	6th Day								
	7th Day								
	8th Day								
	9th Day								
	10th Day								

Gallons Gas Consumed 30 Oil 1 Alcohol 1½ Total Miles 300

RETURN TRIP
Time leaving for Detroit 9:30 pm Date 2-24 1918 Arrival 8 am Date 2-25 1918

EQUIPMENT CHARGED TO DRIVER

Coat	Sheepskin	Cap	Knit	Mitts	1 pair
Overshoes	1 pair	Drawbar	—	Skid Chains	1 pr
Jack	1	Tires	—	Tubes	—
Pumps	—	Tool Kits	1	Other Tools	—
Tarpaulins	one	Miscellaneous	—		

What disposition have you made of the above articles: Returned via Baggage Check

Foreman must see that this report is complete in every detail then O.K. by signing below.
Foreman's Signature Jay F. McNamara
Time of Day 9 A.M. Date 2/25 1918
City Detroit Mich.

A form used by the Maxwell Motor Sales Corp. One is given the driver and a duplicate is retained at the plant. Its purpose is obvious. A similar form could be used to advantage by dealers

spective sections come for them. A supply of 800 to 1,000 cars is always maintained at each warehouse.

Dealers desiring cars from the factory must send in a requisition three days in advance. They cannot come up and expect to find their cars ready for them.

Oakland Leased Freight Cars

Oakland has been driving cars to its Cleveland distributer all winter. A string of fifty railroad cars was leased to ply between Chicago and Pontiac, and another train of twenty-nine was leased to travel between Pontiac and Kansas City, Minneapolis, Omaha and Chicago. As in the case of Paige, dealers come to these points for drive-aways. Within 300 miles of the plant, drive-aways are quite common.

The Hupp Motor Car Corp. averages twenty-five cars daily. In one day forty-two cars left for Kansas City and the following day twenty departed for Louisville, Ky., and thirty for Omaha. Ten cars are driven away from the Saxon plant every day. In some instances the prospective owners of cars come after them.

Some dealers were aware of the conditions and stored cars during the winter months and now have generous supplies to draw on, thereby losing no business and cashing in on their long-sightedness.

Collier Company Going Ahead

BELLEVUE, OHIO, April 4—At a stockholders' meeting of the Collier Motor Truck Co., F. W. Steinen and Charles Matz were elected to the board of directors. The officers are: President, R. A. Palmer; vice-president, S. H. Penfield of Jamestown; secretary and treasurer, John F. Corl. The company is making preliminary plans for an extensive factory building, to be built on the large tract of land owned by the company at Bellevue. New agencies have been established in the states of New York, Pennsylvania, Massachusetts, Rhode Island, Connecticut, Delaware, Ohio, Michigan and Louisiana, and an announcement will shortly be made by the company pertaining to the development of additions to the line of Collier trucks.

Willys-Overland Distributing Plant Leased

SANDUSKY, OHIO, April 4—The Willys-Overland Co. has leased a building here as a distributing and shipping plant. The plan is to drive the cars from the Toledo factory to the building here, and then either ship them to other points or drive them away. The plan has been adopted as a result of poor transportation facilities in Toledo.

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THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Relief from Stopping Vehicles in Front of Residences

Advice was recently sought by a resident of New York City as to what relief the law accorded him from the continued stopping of business motor cars in front of his residence. It appeared that certain delivery wagons were in the habit of stopping in front of the inquirer's house while making deliveries across the street and that when he suggested that they stop in front of the house where they were making deliveries, he was given advice he did not care to follow.

Outside of the fact that there is a city ordinance in New York City which provides:

"Trade wagons shall not be allowed to collect on any street or public place, to the obstruction of travel or the annoyance of persons coming and going on the streets, sidewalks or cross walks, or any property owner or resident in the vicinty," there seems to be no law prohibiting a vehicle from stopping at any point on a public street, providing it is only kept there a reasonable length of time and no nuisance such as the emission of smoke, dropping of oil or excessive noise is committed.

Liable for Delivery of Car to Wrong Person

Where a motor car left with a dealer for repairs is re-delivered to the wrong person, he must stand the consequences and cannot excuse himself by contending that he had a sincere and well founded belief that he was delivering the car to the owner's agent nor that he used care when re-delivering it, is the decision in a recent Massachusetts case.

Suit was brought by the owner of a motor car against the dealer who had delivered up a car, which had been left for repairs, to the owner's chauffeur when he presented an order for delivery signed by the owner's daughter. The car was subsequently wrecked while the chauffeur was on a "frolic of his own," as the Court termed it.

The owner testified that he had never expressly or impliedly consented to the order or the delivery of the car to his chauffeur.

The Court pointed out that leaving the car for extensive repairs to be fixed by agreement after an examination is different from where a car is stored with the idea of keeping it in commission. It was decided that in the former case, it was no part of the authority usually possessed by a chauffeur to take the car out.

The dealer was therefore held responsible for damages to the car because he was under duty not to return it or deliver it to anyone without the owner's expressed or implied consent. The Court said that the damages would be the true market value of the car at the time it was wrongfully given up.

The fact that the order was signed by the owner's daughter was held to be no excuse for the wrongful delivery, the Court saying that the mere relationship of father and daughter alone was not enough to make her her father's agent.—Doyle vs. Peerless Motor Car Co. of New England, 116 N. E. (Mass.) 257.

After the above case had been disposed of, the dealer turned around and started suit against the daughter for the damages sustained by reason of the fact that it had been led to surrender the car wrongfully because of the written order which she had given the chauffeur.

The Court decided that the dealer was entitled to recover the fair market value of the car at the time it was given up on her order with interest to the date of the verdict.

The Court, however, refused to allow the dealer his disbursements and expenses, stating that they were caused by the dealer's own wrongful act in giving up the car. 116 N. E. (Mass.) 559.

TO EXPLAIN to the dealer and garageman various phases of the law is the purpose of this department. Mr. Kaiser will be glad to help you untangle your legal knots. Send them along.—EDITOR.

No Building Law

Editor Motor World: Could you give me some information on building a garage for general repairing? Could I use a frame building with cement bottom, or do I have to have the whole building fireproof? What is the law in this state on garages?—John De Handt, Sodus, N. Y.

Answer—There is no state law in New York at the present time which you would have to comply with in building your garage. In fact the only New York law that you need to become particularly acquainted with is the garagemen's lien law.

Promise Was N. G.

It has just been decided in the New York courts that a garageman cannot proceed against the owner of a motor car for gasoline and accessories furnished when it appears that they were furnished to another person, who originally owned the car and subsequently went into bankruptcy, even if the last owner made a verbal promise to pay the bill. This is a case under the statute of frauds, which provides that there cannot be a recovery on a promise to pay the debt of another unless the promise is in writing.

Help Recover Stolen Cars

PORTLAND, ORE., April 4—W. M. Klinger, general manager of the automobile department of the London & Lancashire Fire Insurance Co., has been establishing automobile identification bureaus in the principal Pacific Coast towns as a clearing house for data on cars that will make their recovery easy if stolen. The bureau system is free to any motorist, whether his car is insured or not. Its purpose is to obtain identification data on his car before it is stolen. The motorist fills out a post card containing questions to be answered about his car. This card is then filed away. If the car is stolen later the identification data on the card are sent to the chief of police of every large city in the country and sooner or later the car is recovered.

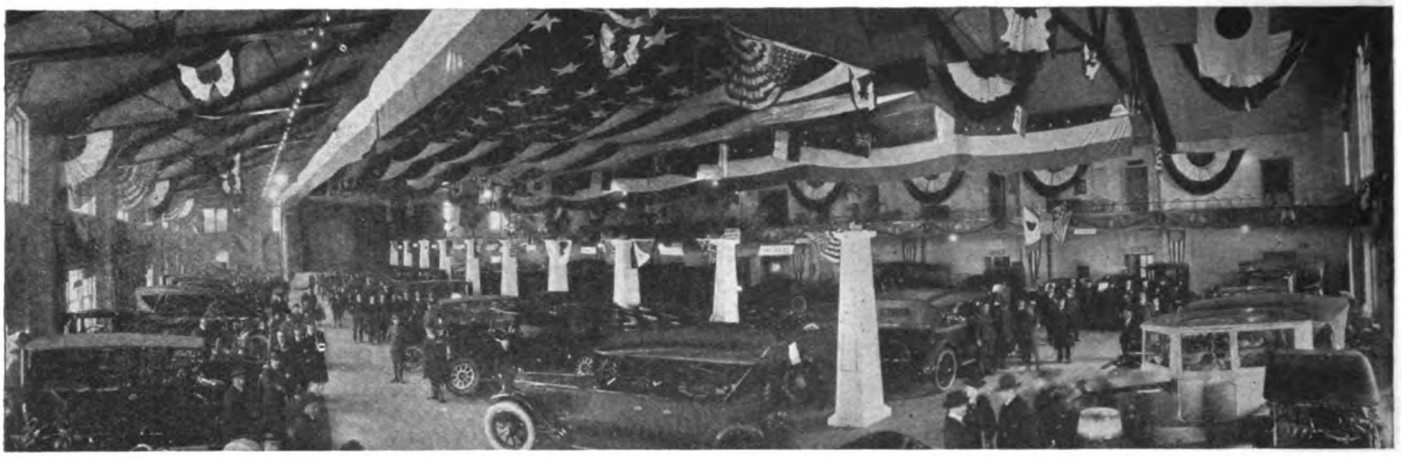
$1000 a Minute

SEATTLE, April 4—One thousand dollars a minute for five minutes for War Savings Stamps was the record set by automobile dealers and distributers of the city at the meeting of the Automobile Dealers' Association. The meeting raised $5,100 for stamps in five minutes. Members of the organization voted to affiliate with the national organization of motor car distributers. It was also voted that all dealers would notify their customers of a tight Sunday closing as well as evenings at 6 o'clock.

Bar Licenses to Enemy Aliens

MONTREAL, April 4—In the Province of Ontario the Government has passed an Order-in-Council providing that alien enemies shall not be granted licenses for motor cars or motorcycles this year. Special legislation would be required to put this act in force in the Province of Quebec, so it only applies to Ontario.

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The Duluth show was typically western in its striking decorations

Tractor Parade Held as Publicity Stunt

Wichita Dealers' Idea Arouses Interest of All the People in Farm Machinery

WICHITA, KAN., April 4 — The Wichita Thresher and Tractor Club put on a parade of tractors and threshing machinery through the streets of Wichita as a publicity stunt.

But it developed into far more than a mere advertising device. It aroused the personal interest of bankers, business men, clerks and women in the practicability and ease of operation of oil and gasoline-driven motor machinery for increasing production in the Southwest.

Wichita is a city of 75,000 people; it has a Federal Farm Loan Bank, one of the twelve in the United States, its district being Kansas, Colorado, Oklahoma and New Mexico; it claims to be the second largest market in the world for the distribution of agricultural implements and machinery and the first in thresher distribution; it is the largest broom corn market in the world; it is an important grain and live stock market, and the oil business has given the city a wonderful growth.

Since most of these features of dominance are affected by the growth of a tractor, truck and automobile business it was to be expected that the city officials would come more than half way in helping to arrange for the parade. The only restriction was that the large tractors should not wear their spikes. This requirement was met in some cases by holding iron bands around the cleets on the wheels of the heavier machines.

Some sixty tractors, nearly each one pulling some piece of threshing equipment, larger ones pulling harvesting and threshing outfits, traveled about three miles over the city paved streets, the parade being witnessed by more than 15,000 people on the streets and hundreds more from their office windows. More than twenty of the tractors, small and large, were driven by women, and this feature provided one of the most striking and significant lessons of the parade to the spectators, especially the bankers and the women. Most of the female drivers were girls, ranging in age from 17 to 20. As far as the public that saw the parade was concerned, the girls might have been expert tractor operators and mechanics. As a matter of fact, several of them had never been on tractors until the day of the parade. All had operated automobiles; they were given 10 or 15 minutes' special training in running tractors and then sent out onto the streets of Wichita in the crowd to keep their line in the parade—and got away with it without a hitch.

The driving of the women was a "nice feature" of the parade. But it proved to be a tremendously important one in that hundreds of business men who have farms or who are in a position to encourage the sale of tractors as well as thousands of farmers who had wondered who would drive their tractors if they bought for spring plowing certainly saw their questions answered.

The Wichita show was given in its forum and on Thresher Row, Thresher Row being about five blocks in the implement district, where are the warehouses and salesrooms of the companies handling tractors and threshers. On two vacant blocks all day long the tractors were exercised, and the visiting farmers could see them in operation and even try the machinery themselves.

The Wichita territory is starting much road improvement work this year; agricultural land is generally kept in pretty good use, and tractors are already being generally used for spring plowing; winter wheat now looks in fine condition and farmers are eager to make all arrangements for harvesting the crop.

Hartford Re-elects Officers

HARTFORD, April 5—At the annual meeting of the Hartford Automobile Dealers' Association, Inc., all the old officers were re-elected unanimously. L. H. Elmer, proprietor of the Elmer Automobile Co., is president; Edward S. Clark, vice-president; John D. Evans, treasurer, and A. C. Rose, secretary. The old show committee, Ben F. Smith, chairman, and Russell P. Taber and John D. Evans, was reappointed for the ensuing year.

Hartford Dealers Rely Solely on Driveaways

Have Abandoned All Idea of Getting Many of Their Cars by Freight or Express

HARTFORD, April 4—Hartford dealers have practically abandoned all idea of getting many of their cars through by freight or express this season. They will run them over the road instead. The Hartford Motor Car Co., Dodge distributer, has completed arrangements for bringing cars through from Detroit by way of Toledo.

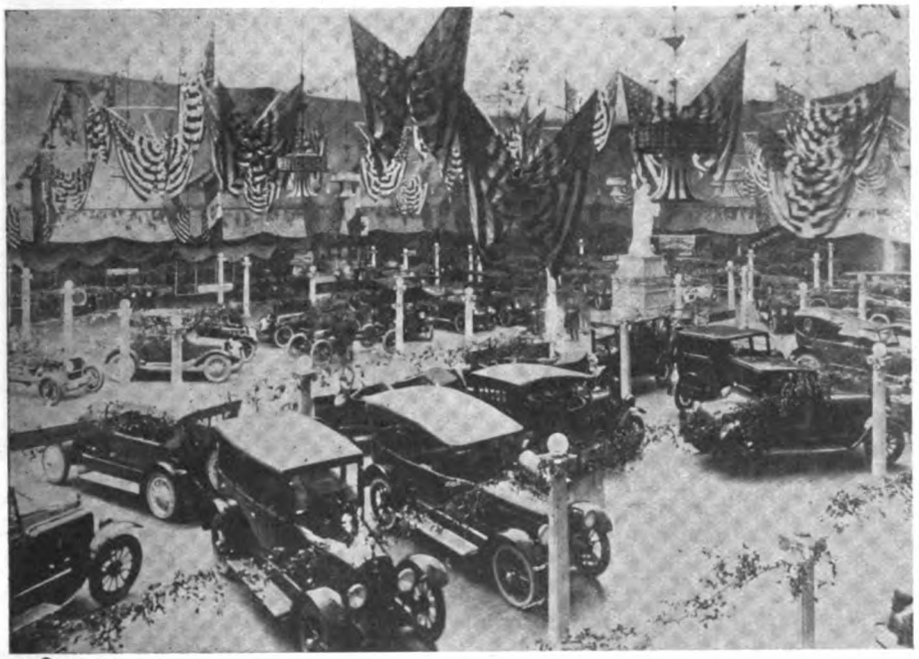
The A. C. Hine Co., Oakland distributer, brought most of its cars overland last year and will do the same this season. George D. Knox plans to bring his Peerless cars overland from Cleveland and will draw some from the New York branch. Russell P. Taber now has on the road a number of Republic trucks. William M. Turnbull, general manager of the Colonial Automobile Co., said he would draw on the New York branch whenever possible this year, but that he would go to Detroit for his cars rather than wait a long time for them.

S. A. Miner regards the run from Buffalo to Hartford as an easy jaunt and is not worried over railroad schedules. The local branch of Willys-Overland, Inc., is more than ordinarily successful in getting cars through the usual channels. The Elmer Automobile Co. usually gets Fords through in several carload lots and will continue to run over the road from Long Island City.

Practically all the Nationals that came through last year were taken from the New York office. The Connecticut Motor Sales Co. runs practically all trucks over the roads from the Middle West. Brown, Thomson & Co., Cadillac distributers, get most of their cars through from Springfield on the New York Central lines, as it appears to be difficult to run them direct to Hartford.

The Thrall-Colton Motor Car Co., Kissel distributer, has been very lucky in getting rail shipments through, but is prepared to go after them if necessary.

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The Trenton show was attractively staged. An imitation Statue of Liberty in the center of the armory pleased all the visitors

Racine Dealers Stage Their First Annual Show

RACINE, April 4—The Racine Automobile Dealers' Association, organized several months ago, conducted its first annual show in the Municipal Market building, Geneva and West streets, Racine, on Thursday, Friday and Saturday, March 21, 22 and 23, with excellent results in every way. In former years Racine shows have been conducted under private auspices in the Lakeside Auditorium, and the same promoters intended to hold another exposition late in February.

However, the formation of a dealers' organization, which determined to conduct its own show instead of permitting profits to go to outside interests, made it necessary to call off the "regular" show, which received practically no support.

The new dealers' association was able to procure the services of Bart J. Ruddle, secretary of the national dealers' association and manager of the last eight Milwaukee shows, and under his direction put up a most creditable exhibition.

Fourteen dealers and six accessory and supply houses filled the Market with exhibits. A feature of the Racine show on Friday evening was the appearance of a delegation of twenty Milwaukee distributers and dealers, led by Alton J. March, president of the Milwaukee Automobile Dealers, Inc., who traveled to Racine in a special interurban car to see the exposition.

Maryland Would Boost Truck Fees

BALTIMORE, April 4 — Several amendments have been tacked on to the Automobile Bill that is now in the Senate of the Maryland Legislature, which increase the license tax on both passenger and commercial vehicles. The license was increased to 60 cents per horsepower. The truck fees follow: 1-ton, $20 a year; 2-ton, $40; 3-ton, $60; 4-ton, $100; 5-ton, $150; 6-ton, $300, and 7-ton, $500.

There is strong objection to the high tariff on the commercial vehicles, and the members of the Auto Club of Maryland are going to make a fight to prevent the adoption of the commercial charges, which they say are unfair and extortionate.

The Baltimore Automobile Dealers Association, represented by its executive committee, held a meeting and discussed the situation, and has placed the matter in the hands of the Commercial Vehicle Committee, of which A. H. Bishop, manager of the Autocar Co. here, is chairman. The bill is ready for its third reading in the Senate, and will then go to the House, where the big fight is expected to be made.

Business School to Give Automotive Training Course

KANSAS CITY, April 4—The Pittsburg Business College, P. W. Errebo, owner and manager, is erecting a three-story building, 100 x 180, at a cost of $75,000, the first floor and part of the second floor of which will be used for an automobile and a general automotive training school. The building is now in course of erection.

The school will be equipped to handle not only the owners of cars who wish mechanical instruction but the men who wish to equip themselves for work in garages and machine shops. A considerable proportion of the students now attending the college are girls. Errebo expects that many of the young women of the district will take the automotive course.

Pittsburg is a coal mining center and there is a large population of foreigners in the city and surrounding territory. From these foreign families come many very bright boys and girls, and as the advancing wages of miners improve their living conditions and stimulate their ambition, it is expected that there will be a considerable increase in the number of boys and girls from the families who will enter other lines of work than those traditional.

Errebo is now planning to erect a garage for public service near the business college building, the garage to be on a plot of 65 x 100 ft. The chief function of the garage would be to provide the practical experience on every-day work for the students in the automobile training course.

Close Portland Ford Branch

PORTLAND, ORE., April 4—This week will mark the close of the Portland assembling branch of the Ford Motor Co. probably for the duration of the war. The needs of the Oregon territory will hereafter be filled from the Seattle plant which, for the present, will turn out 75 cars a day, or about three-fourths of its capacity.



Flags made an archway over the long center aisle at the Trenton show

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Editorial Observation

Wholesale Only?

NOT a few people these days are taking about "wholesale only" as a policy for the jobber of accessories. It is even suggested that this should be made one of the fundamentals of a jobber's business.

During the past year several jobbers have announced this as their policy, and it is suggested that all good jobbers endorse the idea and incorporate it in their businesses.

At first hand it seems a radical step, but those who claim to know aver that it isn't so radical as it seems. So far as the jobbers are concerned it is held by some that they would be better off without their wholesale departments, and that those who have a big jobbing business can well get along without retail departments. There are, of course, two sides to it.

One man says that some years ago he began an analytical investigation of his business. He was both jobbing and retailing. He discovered that his jobbing business wasn't all he thought it was. He found that much of it was with nearby customers who carried little stock, ran down to his place when they wanted an article to make a sale and bought but a small amount annually. He was virtually carrying the stock for the would-be retailers who should have been carrying it if they were to be worthy of the name.

He decided to drop his wholesale department, put in a fast delivery service, charge retail prices and concentrate intensively on retail selling. He has made more money since so doing.

On the other hand, a few big jobbers have retail departments, and, it is to be assumed, they believe these retail divisions are profitable parts of their businesses. Lacking a real analysis of all cases, it is difficult to state how they look upon the question.

Accessories must be retailed. That goes without saying. It is also safe to assume that nearly all jobbers would rather be the local wholesaler of $100,000 worth a year than to retail $50,000 worth and have that volume represent the total retail business.

Furthermore, if there were a live line of dealers in every locality there would be a much larger sale of accessories than there is now. One of the complaints of the jobbers is that the dealers—who should be getting the business—are not going after it, wherefore the jobber feels compelled to establish a retail department.

This retail department is considered as competition by the dealer. But the jobber says he must sell at retail because the dealer WON'T. It is not an unfounded assertion. Dealers are NOT making the efforts they should to sell accessories.

If all the dealers in all the jobbing towns in the United States were to say: "Here. You quit retailing and we'll do it in a real way," there probably isn't a jobber in the business who wouldn't gladly close his retail store and help the dealers get the retail business that once went to the jobber.

It is one of those situations that are many-sided. It isn't to be expected that the trade is to be turned upside down over night. But it would be a fine thing if the jobber did nothing but job and the dealer became a real merchandiser of accessories.

There would be a greatly increased business in accessories for manufacturer, jobber and dealer. All would make more money than they are making now.

The Only Way Out

ONE big point is made plain by the Chicago Exchanged Car Show and the developments connected therewith.

The point is this: There is only one solution to the so-called used car problem, and that is to handle the thing in a business-like way, take hold of it as a real business department, handle it the same as any other part of the business is handled and make it register a break-even or a profit.

This requires a little stiffening of the backbone—but this stiffening is noticeable everywhere and especially in Chicago.

One man asked: Is there any tendency towards eliminating trading?

The answer is that the tendency is not so much towards eliminating trading as towards eliminating long trading.

There are a few dealers who have eliminated trading entirely. They will take a man's used car in and sell it for him, applying to the purchase price of the new car whatever is secured for the old car—sometimes exacting a commission for the work.

A few dealers do not trade at all, but they are the exception.

Trading is often 70 or 80 per cent of the dealer's business. It could be 100 per cent and the dealer could still make money if he went at it right.

It is just as easy to figure out

(*Continued on page 49*)

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Letters from Readers

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

Size of Propeller for 30-Hp. Studebaker Engine

Editor Motor World: Will you please let me know what size propeller I will require for a 30 hp. Studebaker engine, 4½ in. bore and 5 in. stroke, four cylinders? The former is going to be installed in a 21-foot V-bottom boat, 4 ft. 10 in. beam with a 7 in. draft.—Galvon Hampton, St. John, N. B.

Answer—We have no record of any Studebaker motor, 4½ in. bore by 5 in. stroke. In 1907, the Studebaker car was equipped with a four-cylinder motor, 4 3-8 in. bore by 4 3-4 in. stroke. As far as we know this is the largest four-cylinder motor which they produced. The present size of the Studebaker motor of the four-cylinder model is 3 7-8 in. bore by 5 in. stroke.

Assuming that you have given the correct size in your inquiry, this motor should develop about 35 hp. at 1200 r. p. m. When installed with exhaust pipe and muffler, according to marine practice, it should drive your boat about 20 to 22 miles an hour and should be equipped with a propeller 17 in. diameter, 24 in. pitch, having three blades, each 5 in. wide.

If the motor is of the 1907 model, 4 3-8 in. bore by 4 3-4 in. stroke, it will develop under marine conditions about 30 to 32 hp., giving your boat a speed of 19 to 20 miles an hour and the propeller should be 16 in. diameter, 22 in. pitch, having three blades, each 5 1-2 in. wide.

If the motor is of the later model, 3 7-8 in. bore by 5 in. stroke, it will develop about 28 hp. at 1200 r. p. m., giving the boat a speed of 18 miles an hour and a suitable propeller is 16 in. diameter, 20 in. pitch, having three blades, each 5 1-2 in. wide.

Cement Floor for Repairshop

Editor Motor World: We are having some occasion to discuss the use of cement floors in our repairshop and machine room in our new building which we expect to occupy April 1.

Our present building has always had wood floors and some of our men object to working on cement. Will you please give us any information along this line which will assist us in going into the point further?—R. A. Hubbard, Independent Garage, Battle Creek, Mich.

Answer—You should use a wood floor by all means, mainly because it is healthier than concrete. The latter is cold and also sometimes damp, with the result that when it is necessary to lie on it, the workman frequently catches cold, develops rheumatism, etc.

Maple makes an excellent material for flooring. So does yellow pine, although it is not as hard as maple nor as tough, and there is the disadvantage that it splinters.

The flooring may be laid directly on wooden scantlings embedded in the concrete.

Combination Sled and Motorcycle

Editor Motor World: One of your representatives happened in my shop and saw this sled and he took a fancy to it and asked me if I wouldn't send you a photo so you could put it in your Motor World.

This sled is driven with a 3-speed Harley-Davidson motorcycle. The front end of the motorcycle rests on the front bobs while the back wheel runs on the snow. It is so arranged that two large coil springs help to hold down on the motorcycle to give it traction on the snow; these springs are arranged so the tension can be adjusted from 3 to 800 lb., as the roads may require.

The sled is steered by the front runners, by means of an automobile steering device. This sled will go over snowy roads where automobiles cannot and where sledding is good a speed of 40 m.p.h. is easily made and about 65 on ice.

The brake is applied on the back wheel through a foot lever. The clutch is released with the left hand, the gear shift by the right hand, the throttle by the right foot or hand. The runners are on the hinge type so when they run over a high place they can rock and not run the nose in the snow.

The rear wheel is provided with a chain and so arranged that the motorcycle can rise or lower so the wheel can always be on the snow.

This is my third sled, the first one in 1913 and the second one in 1915, the third one Jan. 10, 1918. I do believe from what I have seen and read of motor sleds, this one is among the best. The motor is easily taken apart in 30 minutes ready for summer use and put back in about the same time.—Hagan Brothers, Rochester, Indiana.

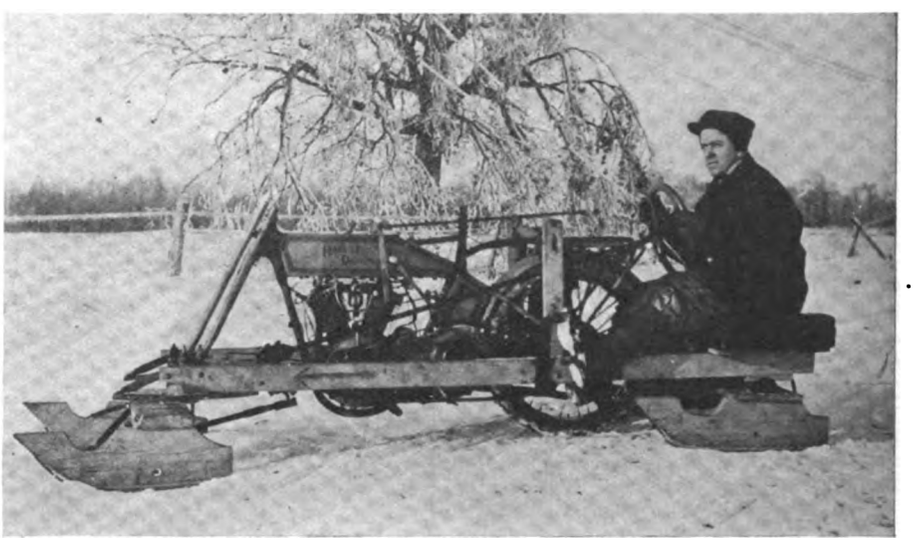
A Frank Opinion

Editor Motor World: Your cartoon and editorial dealing with the trade acceptance question were timely, coming through just as Cincinnati merchants adopted the Trade Acceptance as an improvement over the old method.

The next move for you is to assist the thousands of poor and medium class car dealers in illuminating S/D. B/L. terms and especially the binding contract of manufacturers, requiring dealers to accept cars contracted for (their contract), which dealers haven't or cannot sell due to present as well as normal conditions.

These very manufacturers, that sell for cash before delivery, buy entirely on open account, all or nearly all raw materials that go into the car—and at terms that protect them against non-delivery and price raises. This shows you that the car manufacturers are worse than even sharks because they can break the dealer before he has a chance to secure necessary funds.

The manufacturer might say this will retard the car sales. My answer to this



Sled driven by a three-speed Harley-Davidson motorcycle

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is: Better dealers financially, as there won't be so many people going into the car business and there will be less unknown car makers to compete with.

Let a manufacturer either open his own a la Overland account, i.e., cars, or select responsible agents, and sell on 30 to 60 days terms or consign the cars to those furnishing bonds!

This will also eliminate so many new models each year, which is a farce, as proven by Ford's own words. Make something to please the masses. The rich now buy Fords!

Then the manufacturers should or could force their agents to sell only one brand of cars. (A fine comb instead of a rake.)

The foregoing is based on 13 years of automobile experience in several parts of the country and on the latest news from many Ohio dealers complaining that banks are refusing loans. This is liable to cause a wholesale breaking up of many car agencies.

My present employers are complaining now of so many accounts running from 3 to 5 months, due to lack of funds from banks.

Just recently all Youngstown dealers announced in the Vindicater that all repairs, parts, etc., will be cash. Why?

Perhaps you are afraid to make a cartoon and editorial affecting manufacturers, but remember you are working for dealers of cars and accessories.

I have made it my business to listen to dealers' tales of woe on money matters, and have had their opinion on the subject referred to, which is the real basis from which I secured my information.

The jobbers could stand a good write-up also in such localities where they do a retail and wholesale business, even though there are exclusive retailers doing business in the same town.

Have had experience along this line and will say the educational ads run by the jobbers' association should be centered on the reasons why they sell at retail and at the same time try to secure wholesale business from dealers who also sell supplies retail. Such conditions prevailed in Detroit till E. A. Bowman closed his doors to retail trade, and then certain other Detroit jobbers decided to do likewise, which I hope they have done by now. (They agreed to it being effective 4 months later.)

The party in charge of the advertising campaign of the jobbers' association is a member jobber, selling retail accessories, popular cars, and spoke of operating a retail service station when I saw him about 6 months ago. He admitted to me that he realized they didn't sell dealers locally, no doubt due to their retail policy.

I haven't any scores to settle with jobber or manufacturer, but I believe jobbers could secure more co-operation from dealers if they confined their efforts to wholesale only. Proof of this can be had from such jobbers as now sell wholesale and who are now in a fairly prosperous condition due to my suggested policy.

14 Days Longer

And then it will be here—

The Summer Merchandising Number of Motor World.

It will tell you how you may meet the NEW conditions of business.

It will tell how others have done some of the things you may want to do.

It will give you ideas.

It will make money for you.

Watch for it!

Order your extra copies NOW.

Think why Simmons Hardware Co. or Butler Bros. are so large and national in size.—A. E. Rosenberg, Youngstown, Ohio.

Some Electrical Troubles

Editor Motor World: What makes an ammeter show "charge" when the car runs below 20 m.p.h. and discharge when it runs above that speed?

How should a storage battery be connected up on the car? Should the plus or the minus side be grounded, and does this make a difference with different systems?

I would like to receive full information on magneto recharging. Can a magneto recharger be hurt by connecting it to a 220-volt alternating current circuit?

What is a good rule to go by in testing out a magneto before and after charging?

How should a coil be tested for weakness?

How many dry cells should be used to charge a magneto and should the magneto be hammered while on the recharge?

Should the current be on the recharger steadily or should it be snapped on and off?

Schedule of Commissions Paid by the A. W. Haile Co., Studebaker Dealer, Buffalo, N. Y.

	Per Cent
Big six, clean deal	6
Big six, trade	5
Little six, clean deal	5
Little six, trade	4
Four, clean deal	4
Four, trade	3
Trucks, clean deal	7
Trucks, trade	5
Used cars, clean deal	7
Used cars, trade	6

The commission is based on the amount of cash or notes involved in the deal; in other words a salesman is not paid a commission on the list price of the car unless it is a clean deal.

What is wrong when the car runs nicely on dry cells and misfires and explodes in the muffler as soon as switched on a low-tension magneto?—Berhow & Olson, Huxley, Iowa.

Answer—The only reason that we can give for the ammeter showing "charge" at low speed and "discharge" at high speed is that it is connected the wrong way around. This should be corrected by reversing the connections. With some types of ammeter it does not make any difference which way they are connected, but others, based on a different principle, must be connected in a particular way.

When a storage battery is removed from the car for any reason and replaced, it is, of course, absolutely necessary, if the ground return wiring system is used, that the same side of the battery be grounded as previously. The Society of Automotive Engineers recommends that in grounded systems the positive side of the battery should be grounded, but, of course, it is quite possible to design systems with the negative side grounded.

Whether a magneto charger can be injured by connecting it to a 220-volt alternating circuit depends entirely upon what voltage the recharger was wound for. Of course, a recharger can be operated successfully only with direct current. If it had been designed for 220-volt direct current, it would not be injured by connecting it with alternating circuits of the same voltage for a short period. However, practically all rechargers are of such design that if they are connected to a circuit of the voltage for which they are intended any great length of time, they will over-heat. The circuit should remain closed only for a few seconds, as the magneto attains its full strength almost instantly and leaving the current on longer does no good.

We know of no simple test for a magneto to determine the strength of its magnets except by throttling the engine way down and noting at about what speed the engine begins to miss. If the magneto is very strong, the engine can be throttled down further than if the magneto is weak.

The best test for a coil is that of replacement. If you suspect a coil to be in bad shape, substitute for it another one of the same type and if that obviates the engine trouble, it shows that a coil is at fault.

If you want to recharge magneto magnets by means of dry cells the number of cells to use depends entirely upon the voltage for which the recharger is wound. In order to recharge the magnets you have to take them off the magneto and apply them to the poles of the recharger. Some people believe that tapping the magnets while the current is on makes them stronger, but whether this is so or not is difficult to say. At any rate, the current should not be left on for any great length of time, as this is apt to hurt the recharger.

When a car runs well on dry cells and misfires when switched over to a low-tension magneto it is a very good sign that the magneto is weak.

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The RETAIL NEWS

EAST

The Stability Motors Co., Philadelphia, has been formed to handle Atlas, Atterbury and Old Reliable trucks, and United tractors and trailers. Offices have been opened at 1408 Walnut St., and a service station at 333 South Broad St. A building will be erected for the company at Twenty-second and Market Sts., three-fourths of which will be used for a service station and the remainder for showrooms.

The Apgar Garage, Philadelphia, has moved to temporary quarters at 7 South Twenty-second St., while its old building at Race and Twenty-second Sts., is repaired and remodeled.

The Atlantic Refining Co. is building two large service stations in Philadelphia.

The Bearings Service Co., Philadelphia, has moved to larger quarters at 721 North Broad St.

The Truxton Sales Co., Philadelphia, has leased the store at 1714 North Broad St. as a showroom and service station for the Commercial Car Unit Co.

The Star Tire Co., Inc., New York, has moved from Broadway and Seventy-sixth St. to larger quarters at 226 West Fifty-second St.

New Garage

S. I. Stein.....North Broad St., Philadelphia

MOUNTAIN

The Mountain Motors Co., Denver (used car department), has moved to larger quarters at 1166 Broadway.

The Tabb-Collin Co., Rupert, Idaho, Liberty distributer, has changed its corporate style to H. E. Tabb & Co.

New Garage

W. S. Withers .....Boulder, Col.

SOUTHWEST

The Green Motor Car Co., Little Rock, has installed a repairshop.

L. Atherton, Augusta, Kan., has bought the Augusta Vulcanizing Co.

Carey & Reed, Belleville, Kan., is remodeling his garage.

G. E. McCarthy, Blue Rapids, Kan., has taken over additional quarters.

Archie Crosby, Cedar, Kan., has sold the machinery in his garage to L. D. Wenger, Portis, Kan.

Wm. Hoover, Eureka, Kan., has bought the garage business of E. L. Cook.

H. C. Fuller, Hays City, Kan., has sold the Golden Belt Garage to Frank and Ralph Bassler.

Finley Thompson, Holton, Kan., has opened a storage battery station.

Kincaid Garage & Livery Co., Kincaid, Kan., L. B. Shepard, proprietor, has moved to new quarters.

G. C. Willis, Lawrence, Kan., has opened a branch company.

Walter M. Halpin, Leavenworth, has opened the Grant Light Six Motor Car Co.

The Hodgson Tire & Supply Co., Little River, Kan., has opened.

Fred Maas, Manhattan, Kan., has sold his garage and repairshop to Lou Bardwell and Byron Blake.

Chas. H. Drashner, Munden, Kan., has bought the Munden Garage from W. N. Leshovsky.

R. H. Reed, Ottawa, Kan., formerly a member of the Hempy-Reed Motor Co., has sold his interest to George W. Early of Marceline, Mo.

Selders Bros., Ottawa, Kan., have bought the garage of Haskin Bros.

Tom French, Russell, Kan., has bought Joe Witt's interest in the Gorham Garage.

F. H. Borland, Smith Center, Kan., has bought the garage of Chatelle & Hershey.

Orsen & Hamilton, Soldier, Kan., have opened a battery, ignition and vulcanizing establishment.

McGinty, McAnulty, Sturgis, DeLappe & Duff, Pittsburg, Kan., have bought the garage and automobile business of L. H. Billings.

Callaway-Montgomery Motor Co., Fulton, Mo., has opened salesrooms.

W. V. Riggs and **J. Mott Douglass,** Kennett, Mo., have bought the Riggs Motor Co.

John F. Uptogrove, Middleton, Mo., has opened salesrooms for the Oldsmobile and Buick cars.

Meeker-Sutterer Auto Co., Perryville, Mo., has bought the Killian & Fassold Garage.

Checotah Auto Supply Co., Checotah, Okla., will erect a new building for its supply business.

Ray Buckles, Collinsville, Okla., has installed a vulcanizing department in his garage.

J. T. Ross, Frederick, Okla., has bought the garage of A. L. Burnham.

The Wright Motor Car Co., Okmulgee, Okla., Wright & Mitchell, proprietors, has opened for business.

E. W. James, Okmulgee, Okla., has opened the E. W. James Motor Co.

F. A. Mosher, Sentinel, Okla., has opened quarters.

L. H. Lee, Corsicana, Tex., has moved to the new Cookney Bldg.

The Southern Motor Co. of El Paso has opened a branch office at 337-341 West Washington St., Phoenix, Ariz., for Republic trucks. C. E. Stromberg is in charge of the Phoenix office.

W. A. Whatley, Haskell, Tex., manager of the Texas Garage, has installed a vulcanizing plant.

The Citizens Auto Co., Seguin, Tex., has purchased the machinery and equipment of the Boyle Garage and moved into the building occupied by the latter.

The Standard Vulcanizing Co., Seguin, Tex., has moved to a new building on Austin St.

The Tyler Vulcanizing Co., Tyler, Tex., has opened a new plant in the Carton Bldg.

New Garages

Hanover Garage (addition)...Hanover, Kan.
John H. Holden .....DeQueen, Ark.
L. J. & T. J. Davidson..Yates Center, Kan.
J. W. Prince .....Ottawa, Kan.
Geo. Tacha .....Jennings, Kan.
James Kennedy .....Frankfort, Kan.
J. N. Snyder .....Linwood, Kan.
John Dix .....Meriden, Kan.
Geo. H. Siedhoff .....Wichita, Kan.
J. A. McMaster .....Macon, Mo.
Malugen Brothers .....Poplar Bluff, Mo.
J. E. Shipley .....Harrisonville, Mo.
Walter H. Meyer .....Brunswick, Mo.
Chas. J. Wolff (addition) .....Clinton, Mo.
Henry Hartbaugher (addition), Washington, Mo.
Geo. Taylor .....Tuttle, Okla.
Overland Sales Co. .....Enid, Okla.
Strodd & Colvard .....Salina, Okla.
Ray Rosser .....Binger, Okla.
L. Anderson .....Chandler, Okla.
T. D. Robinson .....Miami, Okla.
J. Tabor .....Lamont, Okla.
Ed Smith .....Lamont, Okla.
P. Tinney .....Tulsa, Okla.
J. D. Hickline .....Woodville, Tex.
The El Paso Co-operative Garage, El Paso, Tex.

SOUTH

The Georgia Auto & Supply Co., Savannah, Ga., has changed its corporate style to the Georgia-Liberty Co.

New Garage

S. C. Blackmon Auto Co.....Monroe, La.

NORTHWEST

Gordon & Slycord, Eddyville, Iowa, have bought the Eddyville Garage from Henry Sisco.

Leo Hill, Knoxville, Iowa, has bought the Kitterman Garage at Lovillia, Iowa.

The Monona County Auto Co., Onawa, Iowa, has bought the adjoining ground and will erect an addition.

A. J. Schauppner, Primghar, Iowa, has sold the Primghar Auto Co. to Dr. G. E. Summy and Leo Mills.

The Square Deal Garage, Rolfe, Iowa, has been bought by J. H. Seaman.

Fred Hass, Madison, Neb., has bought the garage of Jack Hall.

New Garages

W. E. Park .....Storm Lake, Iowa
C. G. Biddison & H. A. Wright..Leon, Iowa
A. N. Parizek.....Grundy Center, Iowa
John Castek & Frank Crofter.....Iowa City
L. H. Harmon .....Iowa City
E. A. Lester .....Perry, Iowa

MIDDLE WEST

R. C. Sims, Detroit, has purchased the tire repair business formerly conducted by A. B. Dygert at 388 Grand River Avenue.

The Miller-Judd Co., Detroit; Liberty distributer, has leased the salesroom at 974 Woodward, and will move its used car and service departments there. The old quarters will be devoted to the sale of new cars.

The Motor Mart has opened a branch in Hamtramck, Mich., and expects to establish branches in other outlying parts of the city.

DeGayner & Johnson, Iron Mountain, Mich., have moved to a new garage on West B St. The firm will handle accessories.

The Camel Tire Co. has opened a tire house in Chillicothe, Ohio, as a branch of the Toledo store.

The Standard Motor Sales Co., Cleveland, Ohio, will open a salesroom at East Sixty-third St. and Euclid Ave.

The Victor Rubber Co., Springfield, Ohio, has opened a branch in Detroit for the distribution of Victor-Springfield tires and tubes in Michigan. The Detroit branch is a Michigan corporation, of which Edward H. Miller, Jr., is president; John M. Van Doon, vice-president; H. S. Hickey, treasurer.

The Standard Garage Co., Toledo, will move to its new building April 15. The new structure will have a capacity for the storage of 350 automobiles.

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The Appleton Auto Co., Appleton, Wis., has been appointed district dealer in the Nash line in Outagamie, Waupaca and Shawano counties, Wis.

W. H. Murphy, Fox Lake, Wis, has disposed of his garage and sales business at State and Mill Sts. to W. D. Mahoney.

The LaCrosse Overland Co., LaCrosse, Wis., has opened a branch showroom and sales office at 522 Main St.

S. L. Meister, LaCrosse, Wis., has leased the garage and service building on South Second St., recently vacated by Elsen & Philips, and will operate it as a garage, funeral livery and repairshop.

The Rybold-Weihaupt Auto Co., 306-310 South Third St., LaCrosse, Wis., district distributer of the Maxwell, has changed its corporate style to Weihaupt Auto Co., following the purchase of the interest of Martin Rybold by John G. Weihaupt, who becomes principal owner.

Upham & Schacht, Inc., Milwaukee, has succeeded the Upham Motor Car Co., and will handle the Empire car in Wisconsin and northern Michigan.

York & Robinson, Portage, Wis., have taken over the Portage Hotel Garage, Wisconsin St., which is being remodeled and fireproofed and considerable new machine tool and other equipment installed. The firm will specialize in repair work.

New Garages

W. D. Booth Auto Co.....Springfield, Ill.
Reo Motor Car Co.....Rockford, Ill.
Lynn Perry .....Decatur, Ill.
Maple City Garage.....Monmouth, Ill.
Kenny's Garage .....Alfred St., Detroit
Elsen & Philips .....LaCrosse, Wis.
Downer Garage & Sales Co.....Milwaukee
August Brandt & Son.....Black Creek, Wis.
Smith & Bentley .....Plainfield, Wis.

PACIFIC COAST

F. E. Smith, Modesto, Cal., has bought and remodeled the Mires Garage.

Fargo & Herron are now operating Lacharias' Garage, Modesto, Cal.

Marion Moorehead, Modesto, has opened a vulcanizing plant styled Moorehead's Rubber Works.

Remo Zamon has opened the Class "A" Auto Repairshop in Modesto, Cal.

J. A. Anderson has purchased a half interest in the garage and agency of the Modesto Motor Co., Modesto, Cal.

Bob Foster has purchased the 13th Street Garage, Modesto, Cal.

Sapp & Peterson, Modesto, Cal., will open a Liberty salesroom with a service department adjoining the showrooms.

L. H. Peterson Co., Modesto, Cal., has moved to a new building at 819 Eleventh st.

The Beckman Machine Works, Oakland, has added an accessory department.

The National Tire & Rubber Co. has opened quarters at 305 Market St., San Francisco.

Stoesser & Stewart, San Francisco, have purchased the San Francisco Auto Repair Shop, 33 Shotwell St.

The Little Giant Truck Co., San Francisco, has moved to new quarters at 627 Howard St.

The Brown Truck Corp. has enlarged its quarters at 1222 Mission St., San Francisco.

The Double Seal Ring Co. has moved to new quarters at 1124 Polk St., San Francisco.

McDuffie & McBride, San Francisco, have moved to a new building in Modesto, Cal.

The W. J. Benson Co., San Jose, has opened a branch salesroom at Modesto, Cal.

Hamblen & O'Neill have purchased the Central Garage, Sonora, Cal.

Charles A. Richmond, Colfax, Wash., and **Oscar Hill**, Pullman, Wash., have formed a partnership and opened quarters at Pullman. The firm, which will be styled Richmond & Hill, will handle Saxon, Westcott and Paige cars and Truxton truck attachments in Latah County, Idaho, and Whitman County, Wash.

J. E. Goodfellow and **G. M. Holmes**, Seattle, have formed a partnership to handle used cars. A building is being erected on East Madison St.

Dirks Motor Supply Co., Spokane, has leased a new storeroom at 826 Second Ave., which will increase the floor space 50 per cent.

Western Truck & Tractor Co., Spokane, has moved to new quarters at 1201 Sprague Ave.

Heath & Seeds, Tacoma, are remodeling their garage and service station for Studebaker, Chalmers, Chandler and Hudson cars.

The Tacoma Battery Supply Co., Tacoma, has moved to new quarters at 112 South Eighth St.

New Garages

H. Seifried .....Riverbank, Cal.
Warren's Garage (addition), Wenatchee, Wash.
A. E. Nicholls.....Wilson Creek, Wash.
A. A. Weaver & Son....Wilson Creek, Wash.

These Men Are Strong for the "Cash Basis"

"No Credit" Becoming the Slogan in Colorado

THE cash basis program is winning strong support in Colorado, New Mexico and Wyoming, and tradesmen who have already adopted it predict a further substantial growth in the next few months.

The Denver and the Rocky Mountain automobile trades associations have been enthusiastic in urging all branches of the trade to take this better-business step without delay, and their activity thus far has brought substantial results in this direction.

The seventeen members of the battery division of the Denver body have established the cash basis by unanimous agreement and so notified their customers, while plans are under way to line up all the divisions as rapidly as possible. Several individual members of practically all branches have already started the new system independently.

Through the influence of these largest two organizations the cash basis has been recently adopted by seventeen trades in the three states represented in the Rocky Mountain Automobile Trades Association and comprising the main territory supplied by Denver distributers. In state groups, these cash-basis organizations are:

Colorado: Automobile Trades Association of Pueblo; Colorado Springs Automobile Trades Association; Arkansas Valley Garagemen's Association, Pueblo; Weld County Auto Trades Association, Greeley; Logan County Auto Trades Association, Sterling; and the Trinidad, Boulder, Longmont, Fort Collins, Greeley and Fort Morgan Auto Trades Associations.

New Mexico: The Albuquerque, Las Vegas and Raton Auto Trades Associations.



FRED L. GREEN
President, Denver Automobile Trade Association

FRANK C. FARQUHARSON
President, Rocky Mountain Automobile Trade Association

HARRY G. MOOCK
Secretary, Rocky Mountain Automobile Trade Association

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Accessories

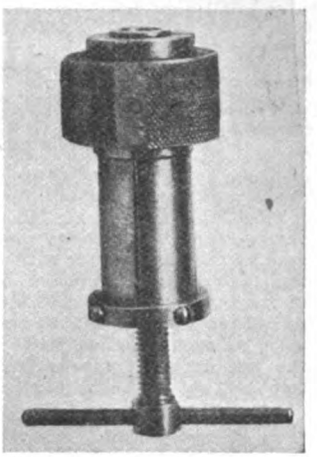
U-SEE FILLING STATION

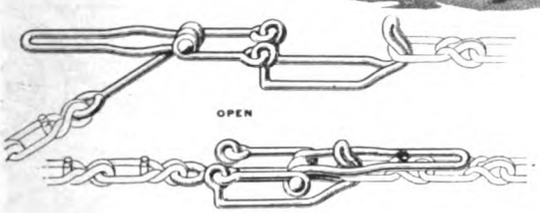
In this gasoline filling station the gasoline which goes into the customer's car is in full view in the twin 5-gallon bottles. If the customer asks for 5 gallons, one of the bottles is emptied directly into his car tank through a hose by opening a cock. If the customer desires 10 gallons, both bottles are emptied. Should a quantity less than 5 gallons be desired, the bottles are graduated, and just the right quantity can be let out. The bottles are refilled by opening another cock which controls the vacuum. The filling process automatically shuts off when the bottle is full. There is no pressure on the storage tank when drawing from or filling the bottles, and no auxiliary pressure tank is required.—U-See Mfg. Co., Springfield, Ill.



BEARING AND RACE EXTRACTOR

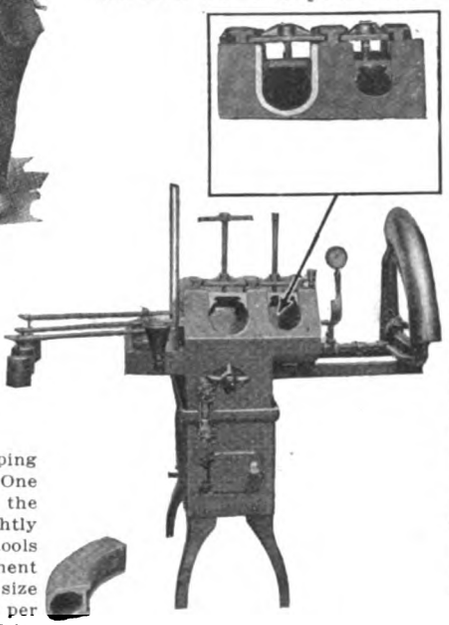
The Campbell combination bearing puller and race extractor is intended for pulling magneto and electric generator bearings and others of this type. It is adjustable to different sizes of bearings without difficulty and is used without any other tools. It can be purchased complete, at $15, or the outer race extractor can be purchased alone at $5. The bearing puller alone is $10.—Campbell Auto Works, Stockton, Cal.





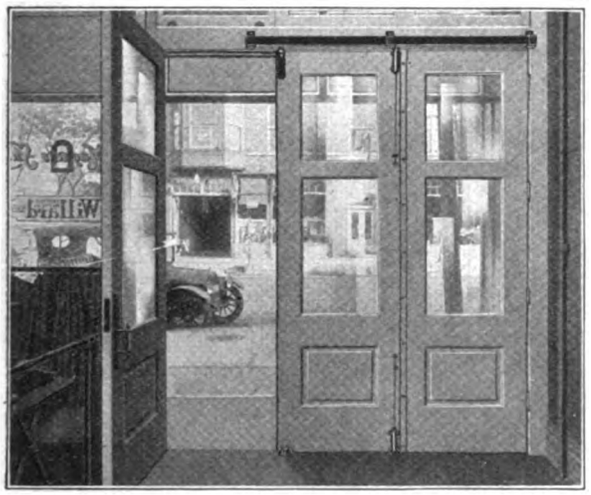
EZYTITE TIRE CHAIN ADJUSTER

A chain locking device consisting of a heavy steel wire rust-proofed link with a clamping lever, on which is pivoted a connecting piece with an eyelet for fastening the adjuster to the side chains. The hook locks the chain and the clamping lever locks the hook. One throw of the lever releases the chain or adjusts it as tightly or loosely as desired. No tools are required and the adjustment is made in a moment. One size fits all chains. Price, $1.50 per set of four.—Cox Specialties Mfg. Co., Bridgeport, Conn.



AKRON MOLDS IMPROVED

The type F vulcanizing equipment has been improved by increasing the 2½-3 in. cavity to 3½-4 in. and providing it with a reducing shell to take 2½-3 in., thus permitting two popular sized tires to be cured at once. The other cavity remains 4½-5 as before. There are an inside patch attachment 3½-4 in. and a set of bead molds either straight side or quick detachable in one-fifth circle. Sizes are 2½-3 in., 3½-4 in., 4½-5 in. Price $180.—Akron Rubber Mold & Machine Co., Akron.





GARAGE DOOR HARDWARE

Slidetite garage door equipment is made for three to six-door openings in widths from 8 to 16 ft. The doors fold and slide inside the building. Four doors hinged together in pairs may be used, one pair folding to each side of the opening. Doors fit tight, are weatherproof and do not sag. Four door outfit consists of two hangers, two center brackets, two end brackets, two intermediate brackets, hinges, track, bow handles, center guide, four bumper shoes and two top and bottom bolts, with which are included keepers.

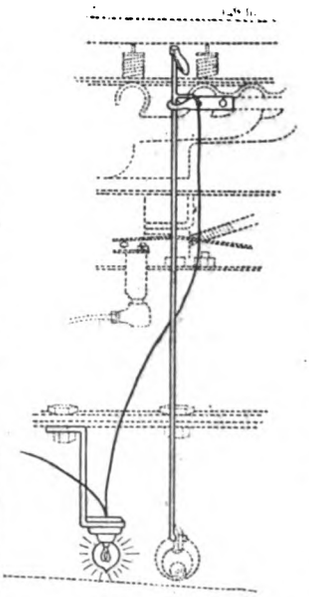
Other outfits vary in the number of articles furnished and minor details. Hardware can be fitted to any doors, new or old, if they come within the required sizes. Prices range from $11 to $46.—Richards-Wilcox Mfg. Co., Aurora, Ill.

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OMC DISPLAY CASE

This cabinet is for use with OMC individual containers for ignition contact parts and generator and starter brushes. The cabinet has a glass front so that customers can see the goods, and the back is fitted with hinged doors. Goods are well displayed, and it is an easy matter to look for short stock. One of these cases will be furnished free of charge with an order of parts and brushes amounting to $100, or the cases will be sold separately.—Otter Mfg. Co., 243 West Seventeenth Street, New York City.



LAMCO OIL SIGHT

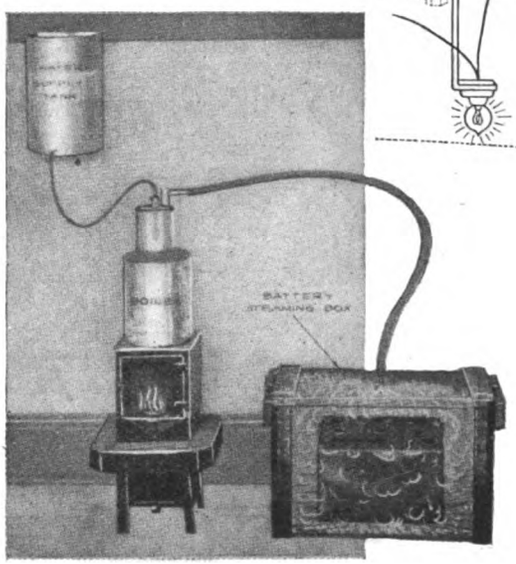
The Lamco oil sight is for Buicks and consists of a special bracket attached to the frame and carries a socket and a small electric light bulb. A convenient handle switches on the light for inspecting the oil level gage. It can be installed in 15 min. Price $3.75.—Limpp & Agee Mfg. Co., King City, Mo.

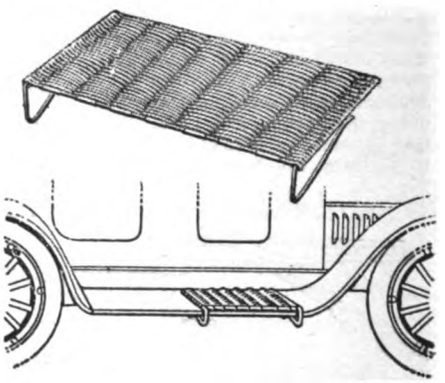
BAILEY'S REVERSIBLE MAT

This is a reversible step mat, constructed with a frame of galvanized iron with transverse straps, woven between which are cord. Being thin, it is easy to keep clean and sanitary, it is easily dried, and is light and durable. It is made in two colors and sells at $1 for single mats, $8 in lots of a dozen, and $36 in half-gross quantities. — M. B. Bailey, 217 West 125th Street, New York City.

PEERS BATTERY STEAMER

This is a time- and labor-saving device for the garage man and is intended for softening the sealing compound on starting and lighting batteries by steam, so that the battery may be easily opened without the use of gas flame or blow torch. The apparatus consists of the steam generator, the steaming box and the water supply tank. When a battery is to be opened, the connectors are removed and the battery placed in the steaming box, where it remains for 15 minutes to soften the compound. The generator is heavy galvanized iron. Water enters through the cover and is connected to the water supply by a rubber hose. The amount of water in the generator is controlled by an automatic float valve. The generator is set on an oil or gasoline stove and steam is generated in a short time. The supply tank is galvanized iron and is connected to the generator by a small hose. The steaming box is wood with a connection for introducing the steam from the generator. It is acid-proof inside and out. Price $25.—American Bureau of Engineering, Inc., Chicago.





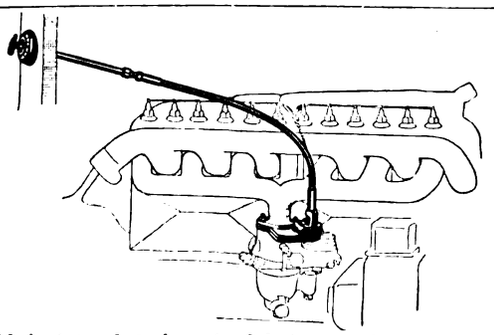
KORK TRED LINING

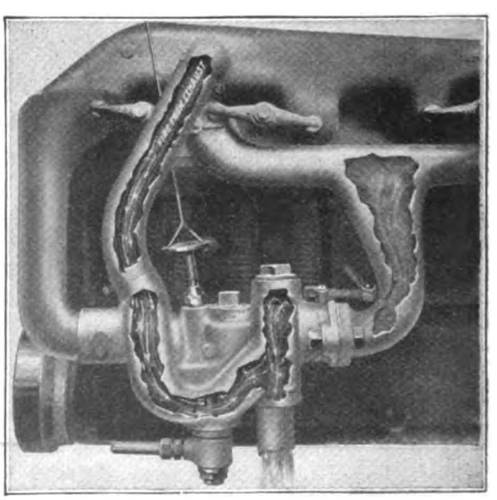
This consists of a standard high-grade transmission lining which has cork inserts used in a new way. The feature is an air-retaining cup which is riveted into the lining and holds the cork. A pocket of air is trapped between the cork disk and the bottom of the cup, the cork disk engaging the drum first as pressure is applied. This compresses the air in the cup, forcing the corks flush with the lining so that part of the wear comes on the lining. When the pressure is released the corks again protrude. The lining is sold only through jobbers and retails at $2.50 a set.—Howe Mfg. Co., Chicago.



COMCO CARBURETER LOCK

This consists of a sliding valve, which is fitted between the carbureter and the intake manifold and shuts off the gas from the engine. The valve is operated by a Bowdoin wire control terminating in a combination dial on the dash. The combination may be changed at the will of the car owner. The complete lock is readily installed on any make of car without the use of special tools or equipment. Price $10.—Combination Auto Lock Co., St. Louis.





GILSON FIRESTONE CARBURETER

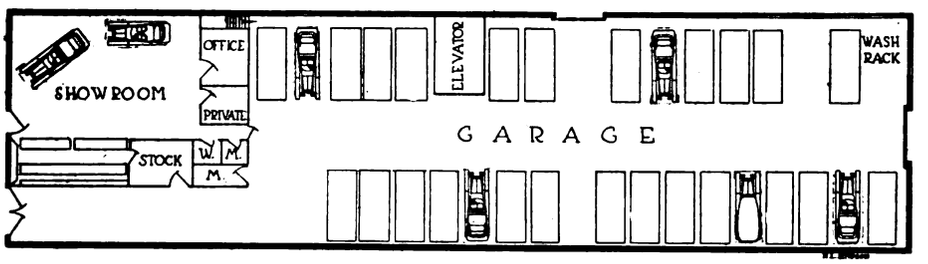
A carbureter that will burn gasoline, kerosene, distillate or alcohol. Constructed of copper to hold heat, has but two moving parts and but one change of adjustment, the needle valve. Starts on gasoline till warm and without change in needle valve, is switched to kerosene by a three-way valve. Exhaust manifold is tapped and part of hot gas is piped to go through mixing chamber and around fuel pin, which is heated to 450 deg. Fahr. Results claimed are dry mixture, no dilution of lubricant, no carbon, more power, more speed and more mileage. Especially suited to Ford, Maxwell, Chevrolet, Grant and Saxon cars. Outfit No. 1 (for kerosene) includes three-way valve with dash rod, 1 gal. tank with copper tubing for gasoline and water circulating pump, and is sold at $30, with $5 allowance for old carbureter. Outfit No. 2 (for half gasoline and half kerosene) is $22.50, and includes three-way valve with dash rod and 1 gal. tank with tubing. Outfit No. 3 (for gasoline only) is the same as No. 2. —Gilson Firestone Carbureter Co., 1806 South Michigan Boulevard, Chicago.

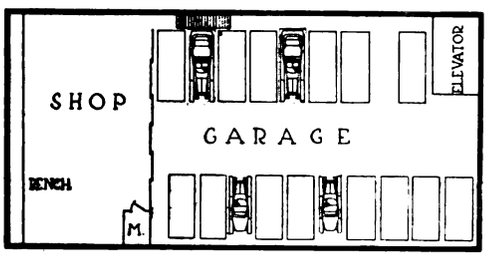
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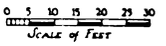
SCIENTIFIC CONSTRUCTION

GARAGES *SHOWROOMS* *REPAIRSHOPS*

We shall be glad to draw a plan for you or give you any other aid in your building, free of charge. But be sure to send full details, including a sketch of the plot, showing position of streets







Floor plan for remodeling a structure to accommodate a garage and showroom. The building runs south for 190 ft. The front of the building is 50 x 100 ft., two stories in height; the remainder is one story

Suggested Plan for Garage and Showroom

Editor Motor World: I am enclosing the floor plan of the building which will be remodeled to suit my convenience, and I will appreciate it very much if you will make suggestions as to the plans. It is needless for me to say that I wish the arrangements to be such as will meet my requirements, being just as convenient and as accessible to the various departments as possible.

The building faces north, frontage being 50 ft. There is a street on the east side of the building and the building runs south 190 ft., the street being on the south side, the west side being brick buildings. The front part of the building, 50 by 100 ft., is a two-story structure and the balance of the building is only one story.

I desire to have as large a salesroom on the northeast corner of the building as I can and wish an entrance from the north side to the garage in the rear. Also desire to put in an elevator and have my repairing done upstairs, and desire a stairway into the upper story. Also plan to have an entrance into the one story structure from the east side and the south side.

My storage for customers' cars is to be in the one-story structure in the rear. My greatest desire is to arrange my salesroom for cars, accessories, parts and office to look nice and be convenient. There will be a plate-glass front and two large plate glasses in the front of the building facing the street on the east.

The salesroom should be modern. Please suggest the kind of floor for the salesroom, and wall decorations. The floor to the upstairs room is a double floor, and would it be necessary to have anything done to it to eliminate the noise above? Please make suggestions as to a toilet for ladies (customers), a toilet for the workmen upstairs, also one for the workmen downstairs.—H. L. Simpson, Gainesville, Tex.

Answer—The plan which we are sending you herewith is drawn according to your specifications, but we believe you are making a mistake in having a driveway from the front street to the garage. It is a waste of space and cuts down the display front, cramping showroom and accessory store. At the same time any added convenience obtained by having this driveway is not worth the disadvantages it brings.

You have a very large building and it has been difficult for us to decide just how much space you will need for the shop, store and showroom. If you find that the spaces we have apportioned are not suitable we shall be glad to draw another plan if you will give us further information on this point.

Probably tile will make you the most satisfactory flooring, but it may be too expensive for you. Be careful to select a pattern which has white for its predominating color, so that the showroom will be as bright as possible.

Linoleum or cork composition floors are also excellent. These are floor coverings laid over wood. The former is cheaper, but not so desirable nor durable as the latter.

If you decide to use a wood floor be sure to stain it so that it may look as attractive as possible. At the same time the stain prevents the floor from becoming spotted with dirt. This may seem an unimportant point, but actual observation shows that it is one which is frequently overlooked.

It is suggested that great care be taken in selecting the color scheme. It is impossible for us to do it at this distance, for everything depends on the exact harmony of the particular shades selected. In general, use a light color scheme in order to save light and have your cars show up most effectively.

Pittsburgh Motor Car Show

PITTSBURG, KAN., April 4—The motor car dealers of Pittsburg, Kan., are making a drive to get the motor cars out to the customers who really need them this summer; as one means to this end, they held a motor car show the week of March 20. This was the second show held in Pittsburgh. The first was held under the auspices of a local newspaper, this one being arranged by the commercial club, of which all the motor car dealers are members. Cars, trucks and a few tractors are being shown, but the emphasis is on motor cars. The trade for the past 2 months has been extraordinary. It is likely that many motor car dealers in Pittsburg will be looking for truck and even for tractor lines to handle. Only a few of the dealers handle trucks now and a smaller number tractors. While the territory is not now considered strictly agricultural, the mining industries predominating, still a casual inquiry reveals a considerable possibility in truck and tractor sales to farmers, as well as in truck sales to business men in the city and in the territory.

Chicago-St. Louis Airplane Mail Service

CHICAGO, April 4—Airplane mail service between this city and St. Louis has been arranged for at a conference of the postmasters of the two cities. The plan has been under consideration for some time, and is certain of fulfillment, although no details as to time schedules, the number of planes to be used, etc., have been decided on yet.

Paige Not to Buy Signal

DETROIT, April 4—The Signal Motor Truck Co. has declined the offer of the Paige-Detroit Motor Car Co. to purchase its plant and assets. The sum of $100,000 will be immediately available with which to carry on the business of the Signal and increase its production schedule. It is planned to make 1200 to 1500 during the year.

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The Home *of* MOTOR WORLD

THIS is the home of MOTOR WORLD, and of the other papers published by the Class Journal Co.—*Automotive Industries, Commercial Vehicle, Motor Boat, El Automovil Americano, Tire Rate Book* and *Transfer & Storage. Motor Age*, also published by the Class Journal Co., has its home in Chicago.

The offices which are pictured on these four pages occupy the entire eleventh floor of a building, the controlling interest in which late last year was acquired by the United Publishers Corp., which owns the Class Journal Co. and in its turn publishes twelve other papers in the dry goods, boot and shoe, hardware, iron and steel, architectural, metal working and plumbing and building fields.

The building is at 231-249 West Thirty-ninth Street and covers a plot measuring 194 by 90 ft., and is entirely occupied by publishing interests. The location is ideal, being within easy access of both Grand Central and Pennsylvania terminals and three blocks from Times Square, which is the famous Broadway and Forty-second Street.

The first floor is occupied by the Times Square Post Office; three floors are occupied by the Federal Printing Co., which is the printing department of the United Publishers Corp.; and four other floors are occupied by the publishing offices of the United Publishers Corp. itself.

MOTOR WORLD will be 18 years old in October of this year. The first issue was published on Oct. 4, 1900, from the Tribune Building in the heart of the daily newspaper publishing section of New York. Six years ago the home of MOTOR WORLD was moved to Broadway and Forty-ninth Street, and four years ago it was moved to the building it now occupies. Late last year the Class Journal Co. took possession of the floor which is illustrated, giving MOTOR WORLD and the other Class Journal papers one of the most thoroughly modern and efficient publishing offices in the country.



MOTOR WORLD is on the eleventh floor of the U. P. C. building. There is a post office on the street floor. The basement and three floors are used by the printing and binding plant. Papers are edited, printed, bound, addressed, wrapped and shot right into the mail trucks in one progressive operation

Visitors to the Class Journal Co. offices step first into a spacious entrance lobby, where they are met by a young lady whose duty it is to see that they are directed as quickly as possible to the department or person with whom they have business. The latest copies of Class Journal papers are at the hand of those who must wait a few minutes

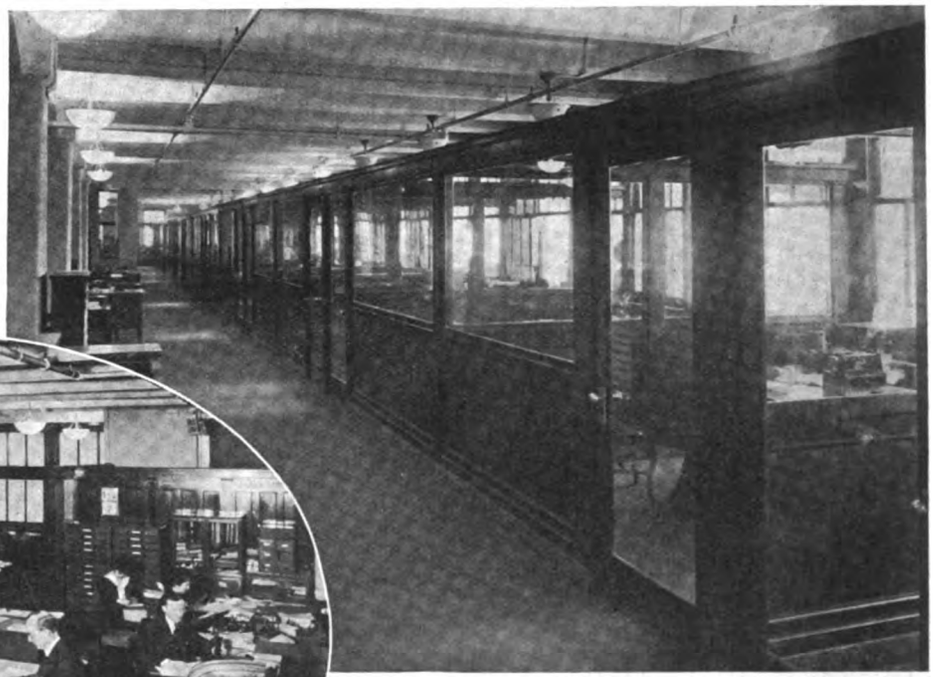
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Private office of Mr. H. M. Swetland, president of the United Publishers Corp. and also of the Class Journal Co., publisher of MOTOR WORLD

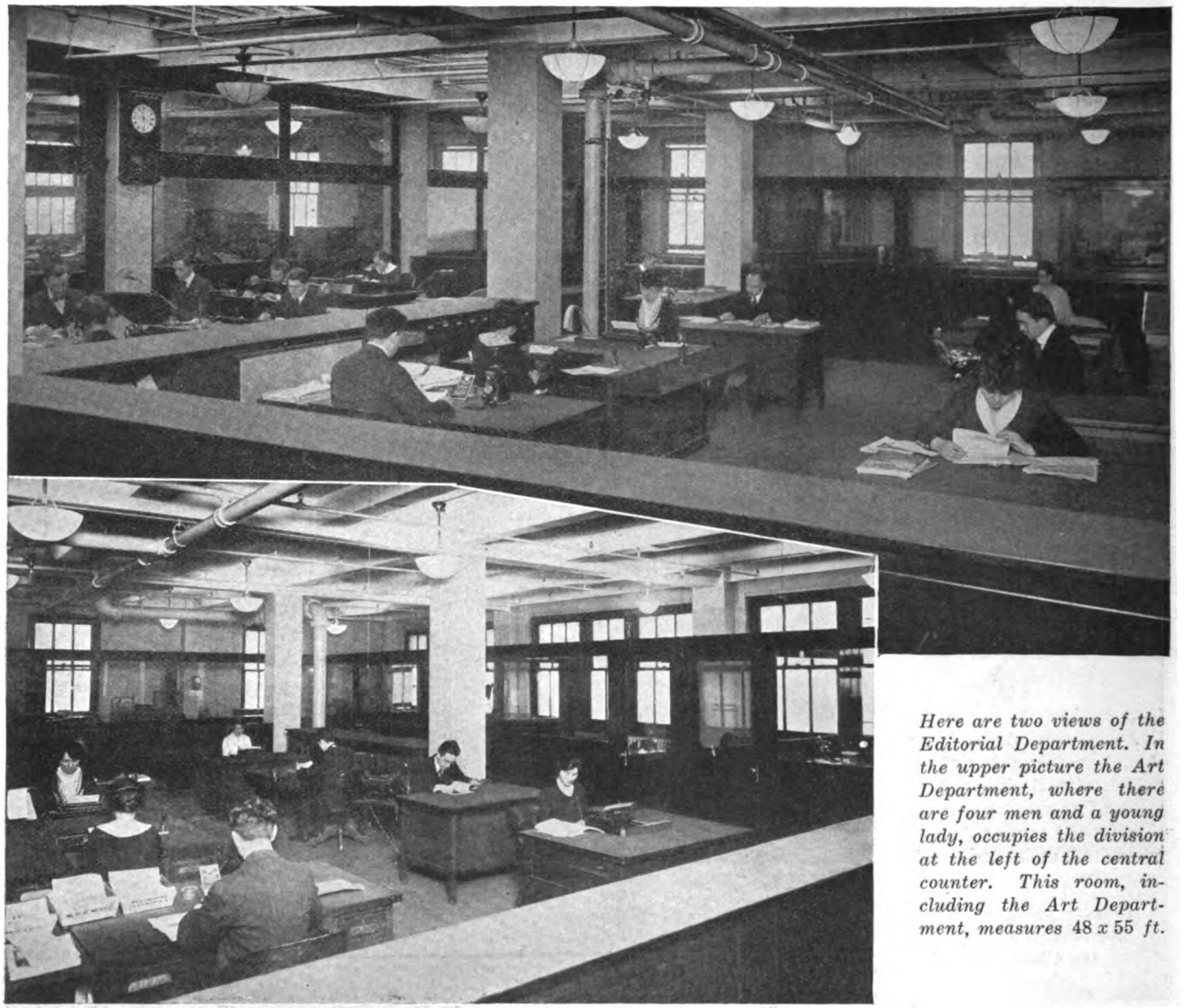
Private office of Mr. A. B. Swetland, general manager of the Class Journal Co.



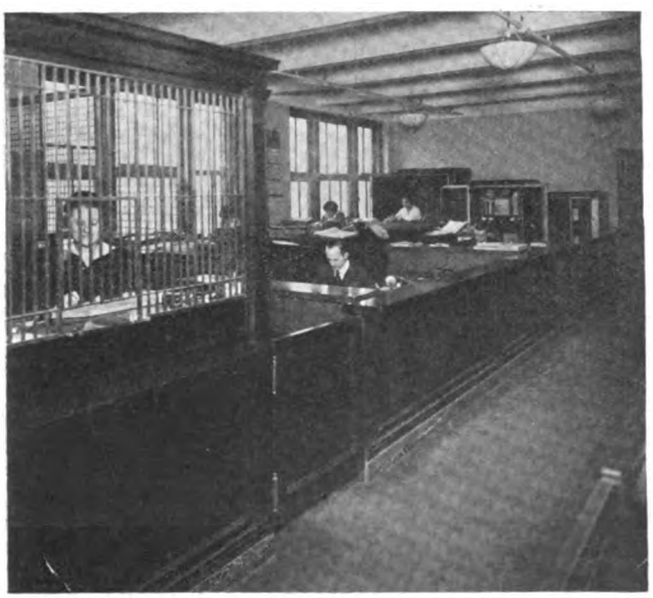


Above is a view along the corridor which stretches the entire length of the Class Journal Co.'s offices. Here are located the various executives of the Business and Editorial Departments. At the left is a section of the Business Department, with the Advertising Service Department behind the glass partition at the rear

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Here are two views of the Editorial Department. In the upper picture the Art Department, where there are four men and a young lady, occupies the division at the left of the central counter. This room, including the Art Department, measures 48 x 55 ft.





The Accounting Department, at the left, employs nine persons. At the right is the Reference Library and Statistical Department. Here are filed copies of practically all reference books pertaining to automotive subjects, as well as an immense amount of up-to-date data for the use of the various departments of the Class Journal Company. Only a small section of the vertical file units are visible, the room being enclosed by them on three sides

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Above is a general view of the Circulation Department, where records of all subscribers to papers published by the Class Journal Co. are maintained. At the right is another section of the business department





Cuts used in advertisements are all classified and filed so as to be instantly available



This section adjoins that shown directly above and is a part of the Business Department devoted to outside advertising men

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New Parrett Company Takes Over the Old

Claire L. Barnes and Vincent Bendix, Starter Drive Inventor, Reorganize Farm Tractor Company

NEW YORK, April 8—The Parrett Tractor Co. of Delaware has been organized with a capital of $3,000,000 fully paid in and has acquired the assets and plant of the Parrett Tractor Co. of Illinois, which has been producing farm tractors since 1912. Among the principal movers behind the new company, which is now producing 50 tractors a day and proposes to build 5000 during the present year, are Claire L. Barnes, for several years personal representative of John N. Willeys, and Vincent Bendix, inventor of the Bendix drive for electric starters. Barnes and Bendix have been associated in arranging for the financing of the new company, final arrangemets for which were completed through the banking firm of McClure, Jones & Reed of New York.

Dent Parrett is president of the new company and associated with him are vice-president and general manager Claire L. Barnes; vice-president Robert Barbour, who is also chairman of the board of directors and president of the Barbour Flax Spinning Co., Paterson, N. J., and director in a number of other nationally known enterprises; secretary Warren Barbour, president of the Linen Thread Co. of America; treasurer Arthur Gardner, formerly vice-president of the Central Locomotive and Car Co., Chicago; works manager Robert C. Webster.

The present plant of the Parrett company at Chicago Heights, Ill., has a capacity of 7500 to 10,000 tractors a year; over 200 tractors were shipped during March. The company is now behind immediate shipping orders and will increase production as rapidly as possible. The officers and Henry A. Rudkin, of McClure, Jones & Reed form the board of directors.

Garford Truck Men Convene

BOSTON, April 6—The sales and service men of the New England branch of the Garford Motor Truck Co. held their spring conference this week, at which they planned for a new campaign to take in the early summer.

Extract Teeth of Hewitt Bill

NEW YORK, April 8—The teeth of the Hewitt "Highways Protective Measure" have been extracted. As originally introduced the measure would have barred from the New York State highways all commercial vehicles which with their loads weighed in excess of ten tons. Following protests by members of the National Automobile Chamber of Commerce, dealers all over the state and the Motor Truck Club, Senator Hewitt and the highway department have agreed to raise the limit to 25.000 lb. The amended bill is to be introduced to-day and in all probability will pass with this limit. This means that the bill no longer has the sting which it had. In other words it will not bar five-ton trucks fully loaded, which apparently was the original intention, and will prevent the passage of only a limited number of very heavy loads, such as might be moved by contractors using trailers or semi-trailers.

First Ford "Eagle" Launched in June

DETROIT, April 5—The first Henry Ford "Eagle" submarine destroyer, will be launched at Detroit in June, according to an announcement made by Secretary of the Navy Daniels.

Landman Heads Maxwell Distributers

TOLEDO, April 4—Charles P. Landman was elected to the presidency of the Maxwell Distributers' Association of the central East. This association is an organization consisting of the big Maxwell distributers in the district that includes western New York, western Pennsylvania, Virginia, West Virginia, Michigan, Ohio and Indiana, known as the Cleveland zone. The object of the organization is to work out ideas and cooperative features for the betterment of the Maxwell business in its district, and to work in the closest harmony with the distributers, dealers and factory men. It is probable that Toledo will be the headquarters for the association.

William J. Harvey Dead

RACINE, April 6—William J. Harvey, founder and president of the Harvey Spring & Forging Co., Racine, Wis., died last week from cerebral injuries sustained several days previously when he was run down by a motor truck in front of his home. Mr. Harvey was born in Leeds, Yorkshire, Eng., on June 11, 1846, and came to America in 1849. In 1889 he founded the Harvey Spring Co. to manufacture vehicle springs, and later enlarged the business to include a general line of motor car and truck forgings, the name being changed to Harvey Spring & Forging Co., which to-day is one of the largest and best known concerns of its kind in the country. Three sons of Mr. Harvey, William T., Richard and Edward, were associated with him in the business and will continue the operation of the plant and affairs as heretofore.

Women Drive Trucks Overland

LANSING, April 4—Attired in regulation army uniforms, nine young women, members of the National League for Women's Service, left Lansing April 2, each driving a ¾-ton Reo truck laden with government supplies to Atlanta, in command of Captain R. T. Harrington. For the past 8 months women have rendered valuable service in Atlanta and other cities in transporting government and Red Cross supplies. To demonstrate their proficiency as expert drivers and automobile mechanics, each member will be held responsible for the conditions of her own truck for the whole distance of slightly over 1000 miles.

National Dealer Body Quashes Embargo Rumor

Finds No Bar Against Shipments West of Missouri—Botterill a Vice-President

ST. LOUIS, April 8—The National Automobile Dealers' Association found another field of practical usefulness last week, when an appeal came from Denver to take action against an embargo that dealers there had heard had been declared against shipments of motor cars west of the Missouri River. President Vesper and Assistant Secretary Hoelke immediately began an inquiry and the same day they notified the Rocky Mountain Auto Trades Association and inquiring dealers that there was no embargo, but that the report was due to a misunderstanding that occurred in a long distance telephone conversation between the Nash factory and a Colorado dealer. The association has received thanks from Colorado dealers for the prompt handling of the complaints.

The association also has received letters from the Governor of Pennsylvania and the Mayor of York, Pa., acknowledging that a serious injustice was done to the New York dealer who was fined $720 in York because of unlicensed cars passing through York. Both officials promised investigation, adjustment and an elimination of the cause for such complaints.

President Vesper has named Tom Botterill of Denver as the vice-president for Colorado. President Vesper was the guest of the Chicago Auto Trades Association Friday at the first "war dinner." Secretary Ruddle of the association joined him there. The first issue of the N. A. D. A. Bulletin is almost ready for the printer and will be mailed to members this week. The flow of memberships came last week from Colorado and Georgia. Texas promises a large number of applications this week as a result of President Vesper's visit to that state. The Texas Automobile Dealers' Association has adopted a resolution advising every member to join the N. A. D. A.

Ford Parts Prices Up

DETROIT, April 4—Contrary to the rumors that the Ford Motor Co. contemplates the decreasing of prices of parts, it is stated by the company that prices have advanced on a dozen different units. The price increase became effective April 1.

Ford Plant Bars Visitors

DETROIT, April 4—The Ford Motor Co. has barred visitors from its plant, under rigid orders from the government. It formerly was the practice of the Ford organization to maintain a courtesy department which furnished schooled guides who were familiar with all phases of the industry to anyone who desired to go through the plant.

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Kansas City Dealers Driving 85% of Cars

Only 15% of Cars Reaching Territory by Railroad—Buyers Drive Home

KANSAS CITY, April 8—Drive-outs from Kansas City to surrounding territory have been very extensive this spring, the weather being remarkably open and roads in fine condition. Not more than 15 per cent of the cars going into Kansas City territory from Kansas City warehouses have been sent by freight.

A largely increasing number of cars are coming into Kansas City overland from Chicago or from the factories. During the past two weeks several managers of Kansas City branch houses and distributing agencies have gone into the subject of drive-outs from the factory. Several have made test trips during this period and others are planning them.

One distributer has a definite idea as to the way to find out how to make drive-outs from the factory. He declares that no drive-out under twelve cars can provide adequate information as to the cost and the necessary arrangement. He points to the experience of some branch houses which have bought three or four cars and unfortunately have had to spend an unusual amount of money in fixing them up for sale. He is of the opinion that their experience has been unusual and that a sufficient number of cars must be driven to establish an average cost.

There seems to be a favorable sentiment among prospective buyers with reference to going to the factory to bring cars home. Present owners who have recently driven from the factory are advertising their pleasant experience widely. One man who drove from Syracuse is an especially good publicity agent for the practice.

The chances are that many Kansas City distributers would jump at once into drive-outs from the factory if they had adequate data to guide themselves and to show their customers. They want to sell their cars deliverable at the factory, but are unable to indicate closely just what the cost of the trip to the owner might be, and whether it would much more than offset the saving in freight from the factory to Kansas City.

Truck companies are also planning drive-outs from factories. and most of the sales now in the territory are being delivered overland.

St. Louis Writes Its Slate

ST. LOUIS, April 8—The following tickets have been nominated for the annual election of the Automobile Manufacturers' and Dealers' Association:

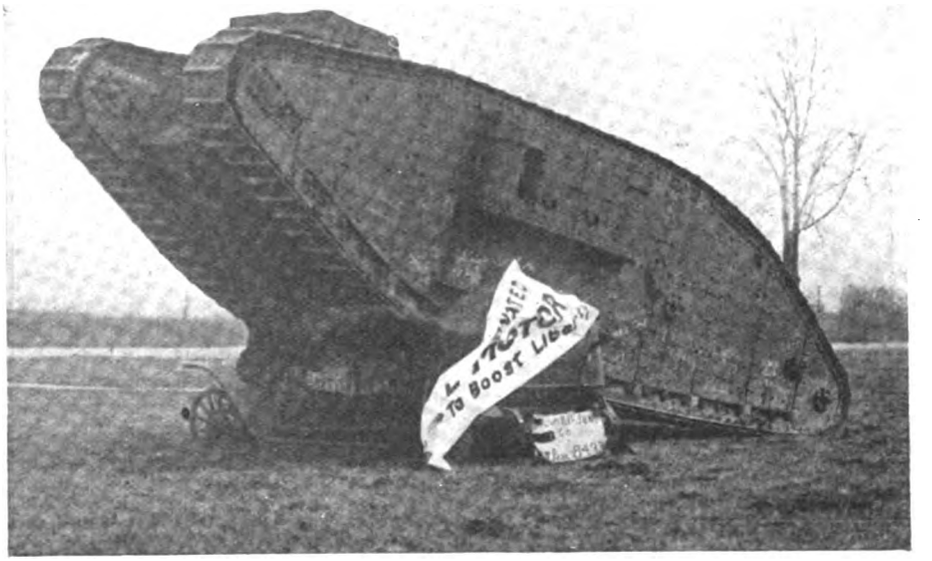
For president—Joseph A. Schlecht and F. H. Fahrenkrog.

Vice-presidents—J. D. P. Lewis and P. H. Brockman.

Treasurer—H. L. Schmure and D. Donnelly.

Directors (six to be elected)—F. W. A. Vesper, F. R. Tate, I. G. McNiece, W. L. Johnson, W. S. Roberts, G. R. Frampton, James E. Newell, George Weber, S. S. Primm, F. W. Wolffe, W. M. Colburn and Edward Weber.

The nominations were made by each member indicating his choice for each office on a list of members and the nomination committee selecting the two highest. The election will be at the April meeting this week. Mr. Schlecht is the retiring president.



ARTHUR STANLEY ZELL, president of the Zell Motor Car Co., Baltimore, Peerless and Chalmers distributer, did his bit for Liberty Loans, and obtained a lot of good advertising before more than 10,000 people, and also helped to entertain the vast multitude when he donated an automobile for the Tank Britannia to smash up at Pimlico, as one of the features of the "Over There" exhibition, which is creating advance stimulus here to the Third Liberty Loan Campaign. Incidentally the Zell company sold the wreck for $200 to the junk man before the smash, and the junk man lost more than Zell because the machine was ground to bits and ploughed into the ground. Here it is shown, the tank passing over the car for the first time. A big sign, "Donated by the Zell Motor Car Co. to boost the Liberty Loan," was placed on the car. The placarded sign was driven about the city for several hours before it was ground up and also aided in bringing out the crowd.

Green Bay Holds Its Show

GREEN BAY, April 8—The second annual show conducted by the Brown County Automobile Trade Association in the Armory at Green Bay, Wis., on April 5, 6, 7 and 8, probably was the largest and best attended of all of the sectional shows held in Wisconsin this year under the sponsorship of the Milwaukee Automobile Dealers Inc. During the progress of the show, the Brown county association published the series of full-page advertisements originated for the purposes of the tenth annual Milwaukee show, Jan. 17 to 26, by E. LeRoy Pelletier, Detroit.

Bart J. Ruddle, secretary of the National Automobile Dealers' Association, and assistant secretary and manager of the Milwaukee Automobile Dealers, Inc., assisted the Brown County association in the management of the show. Mr. Ruddle gave the same service to dealers' associations in Racine, Eau Claire, La Crosse, Madison, Janesville and other large cities of Wisconsin during the 1918 show season.

Bemb Heads Detroit Dealers

DETROIT, April 4—The Detroit Automobile Dealers' Association held its annual meeting last night, and the following officers were elected: President, Walter J. Bemb; vice-president, George W. Franklin; secretary, H. S. Quinn; assistant secretary, Harold Shuart; treasurer, A. L. Zeckendorf; director, Jule C. Ayers. The reports of the various committees and the report of the eighteenth annual show, which was conducted the last week in January, was made to the members. The D. A. D. A. has enjoyed a successful year under the administration of President Baker.

Scrap Metal Prices

NEW YORK, April 6—Prices paid for scrap metals by New York dealers during the past week, as quoted by *Iron Age*, follow:

	Cents Per lb.
Copper, heavy and crucible	23.50
Copper, heavy and wire	23.50
Copper, light and bottoms	21.00 to 21.50
Brass, heavy	16.25 to 16.50
Brass, light	12.25 to 12.50
Heavy machine composition	23.75 to 24.00
No. 1 yellow rod brass turnings	13.50 to 14.00
No. 1 red brass or composition turnings	19.00 to 20.00
Lead, heavy	6.62½
Lead, tea	5.75
Zinc	5.87½

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A section of the ninety-truck motor transport, that recently broke all records for size and speed, is here shown on the Akron-Cleveland road just before it arrived at the B. F. Goodrich rubber plant in Akron, where it collected a cargo of rubber goods

Freight Car Supply Reduces Drive-aways

Many Makers Getting Transportation—Dealers Must Drive Short Distances

DETROIT, April 6—Many manufacturers have been fortunate in securing a greater number of freight cars of late. This has reduced the percentage of drive-aways somewhat, but manufacturers less fortunate have been increasing their drive-aways considerably. Very few manufacturers, however, are using freight equipment for transportation to nearby cities. Usually dealers within a 300-mile radius of the factory are forced to drive away cars, releasing equipment for more distant points.

The average number of cars driven from the Briscoe plant is fifteen daily. The biggest drive-away from this plant went to Memphis. This consisted of thirty cars, fourteen of which were driven by colored men.

The Reo Motor Car Co. of Lansing is forcing all dealers to drive away its trucks. Most of the Eastern dealers are working on a schedule. As soon as they arrive at their home towns with a train of vehicles they immediately take a train back to the factory and start again with another. An Atlanta dealer took away 50 trucks from the factory and a train of 20 went to San Antonio the past week. Thirty drove to Oklahoma City. A novel incident at the plant was the arrival of ten uniformed women belonging to the National League for Women's Service of Atlanta to take away trucks for an Atlanta dealer.

The Willys-Overland Co. averages 300 cars a day on its drive-aways. The past week the most notable events were the departure of a fleet of 107 cars for North Carolina and one of 30 cars to Parsons, Kan.

The Denby Motor Truck Co. has a weekly schedule with New York, Washington, Boston and other Eastern points. Some of the trucks are loaded to capacity with government supplies. The average daily drive-away is 6 trucks.

Of the Cadillac production 40 per cent is driven away. In making big drive-aways from the Hupp Motor Car Corp. it is found advisable to divide the train into groups of ten men each with a captain for each team, who is responsible for its safe arrival. A coating of vaseline is given the cars before they depart, which protects the finish.

HE'S INTRODUCING TRACTORS

Bliven, of Baltimore, Takes Advantage of the Home Garden Movement

BALTIMORE, April 6—F. S. Bliven, manager of the Standard Motor Co., distributor for the Cleveland tractor, and other lines is doing his bit in helping to grow more crops and at the same time introduce his tractor right in the city. Mr. Bliven it will be recalled made use of the snowstorm to demonstrate the Cleveland tractor during a farmer's convention in Baltimore and now he has loaned his tractor to the Home Garden Committee of Baltimore so that grounds in back yards, large lawns and other vacant spots may be ploughed up quickly for seed planting. The Home Garden Committee jumped at the opportunity and Bliven thus receives another big boost for his tractor while at the same time doing a service for his country. In this way by keeping the tractor operating he is in a position to take prospects, who come to town direct to the machine in operation.

Wolverine Tractor Gets Plant

SAGINAW, April 4—The Wolverine Tractor Co., which was organized in Detroit about 2 years ago with a capital stock of $300,000, has acquired a tract of land of approximately 40 acres, on which it is planned to erect a large plant for the manufacture of tractors on a large scale. The principal stockholder is W. E. Wood, head of the W. E. Wood Construction Co. of Detroit, which built all of the big plants for the Ford, Chevrolet and Buick companies.

Many Car Dealers Are Adding Farm Tractors

Dozen Dort Men in Kansas City Round Out Lines—Tractors Precede Trucks

KANSAS CITY, April 8—C. B. Magill, manager of the Dort Sales Co. of Kansas City, says that a dozen or more of his dealers have been adding tractors to their line. In most cases these dealers are well equipped for service and are wide-awake to the opportunities for filling in the possible shortage in deliveries of motor cars.

"In Kansas, at least in several of the districts," said Magill, "the tractor seems to be a necessary prelude to the introduction of the truck. The time does not seem to be ripe in these districts for the truck, but after a year or so of tractors they will be in demand and easy sales."

This comment is in line with the suggestion of a Panhandle Texas ranchman that in his country there is no use trying to sell trucks until the power end of the farm operations is motorized, until the men who work on the farm become mechanics through having to use the tractor in place of horses, until mechanics are substituted for the horse-users horses must be employed in pulling the loads on the road.

In view of the economic demand for better transportation of farm products, and with the improvement of highways, it has been suggested that an immediate real need is for the development from the city end of the combination of motor truck transportation. If the farmers are going to buy trucks this year somebody in the town must send the trucks out to the farmer to gather his produce.

Dort Gets Government Order

FLINT, April 5—The Dort Motor Car Co. has received an order for 1700 trailers of two-wheel type. It is expected that delivery will start May 1.

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Goodyear Expands Its Overland Truck Line

Adds Four Solid-Tired Trucks to the Present Fleet of Seven on Pneumatics

CLEVELAND, OHIO, April 6—Motor truck dealers should follow closely the introduction of four 3½-ton solid-tired trucks by the Goodyear Tire & Rubber Co., Akron, Ohio, to deliver tires between Akron and the eastern seaboard. Although the Goodyear company has been operating seven large-capacity motor trucks mounted on giant pneumatic tires since April, 1917, the introduction of these new solid-tired trucks marks the beginning of the development of overland haulage by the Goodyear company which will eventually handle all of the company's outbound shipments to all points of the Mississippi River.

The four 3½-ton solid-tired trucks will leave Akron with a shipment of tires for the Newark, N. J., branch of the Goodyear company. It is expected the trucks will make the 500-mile trip in slightly under 4 days and that they will bring back crude rubber to the Akron plant.

These trucks have been hired especially for the purpose and are distinct from the fleet of seven Goodyear pneumatic-tired trucks which the company has been operating between Akron and Boston for some time. The introduction of the solid-tired trucks marks the first steps in the proposed plan of the Goodyear company to ship all of its goods to the eastern seaboard and as far west as the Mississippi River by motor trucks as was first intimated in a recent article on the Goodyear company's Akron to Boston run published in Motor World. It is intended later to employ other trucks to carry tires from Akron to Cincinnati, where they will be loaded on the Mississippi River boats for distribution in the south.

This increase in the Goodyear company's delivery fleet is but the first step in a great development of the service, for the Goodyear traffic officials see no relief from the present railroad congestion for at least 5 years.

The trucks are 3½-ton Packards owned by the Cleveland, Akron and Canton Transfer Co., Akron, Ohio. The same company has been operating a fleet of twenty-one trucks in overland haulage throughout the state of Ohio since May, 1917. The trucks will be under the supervision of C. H. Smith, the superintendent of the company, who plans to make the trip over the Lincoln Highway route in 50 hours.

The trucks will leave Akron at dawn on April 10 and will be driven 16 hours a day. As there are about 14 hours of daylight a day at this time of the year, the 16-hour continuous run will mean only 2 hours of night driving daily. It is expected that the trucks will average 10 miles an hour, which with 16 hours running a day, would make the total running time 3 days, 2 hours. It is expected that the trucks will deliver the goods at very nearly the express rates between Akron and Newark, N. J. These rates are $1.90 per 100 pounds. The trucks will carry a load of 9000 lb. so that if the cost is at the express rates, the charge for each truck for the run will be approximately $171.

The run of the trucks to Newark and return will be somewhat in the way of an experiment to determine the cost of overland truck transportation under commercial conditions as contrasted with the experimental conditions in which the Goodyear company's own motor trucks with giant pneumatic tires have been run. It is also expected that the data secured from the trip will give some very interesting comparisons with the cost of doing the same work by these large pneumatic-tired trucks.

Quick Sales York Show

Farmers Prosperous and Late Season Loosens Purse Strings

YORK, PA., April 7—Exhibitors feel that the third annual exhibition of the York County Automobile Dealers' Association during the past week as an advertising proposition surpassed all previous exhibits in this city. Not only were as many prospects secured, but the number of car sales also exceeded those of last year. The lateness of the season resulted in quick sales. York County farmers, in the midst of their spring farm work, the opening of the third Liberty loan campaign, the smallpox epidemic existing in York County, and other issues helped to detract from the show. The attendance, which numbered about 10,000 persons, was considerably below last year.

The exhibits of the 23 dealers, manufacturers and accessory men completely filled every bit of the 40,000 sq. ft. of floor space in the tabernacle, the amount of space given to exhibitors being the same as last year. The display of trucks was a feature of the show this year. About 15 per cent of the floor space was devoted to trucks, and 15 different makes were on display.

One hundred and seventy-five cars, representing 50 different makes, were included in the display. This is practically the same number of makes of cars as on exhibition last year.

Dealers were optimistic over the outlook of future business, and reported that retail sales were up to the average of last year. With the earnings of the large majority of persons greatly increased they feel that the present spring and summer business will show a substantial gain over that of 1917. A few unfilled orders are on hand at this time.

Owing to the seriousness of the fuel situation the show was postponed from Feb. 2 last in compliance with local Fuel Administrator Robert E. Gephart. An exhibit of Cleveland tractors by the Harrisburg Auto Co. was a feature, and attracted the attention of the show visitors. The Harrisburg company recently furnished to the state five Cleveland tractors for rental to farmers, and about 10 days ago delivered two other machines to purchasers on York County farms.

The income of the majority of residents of York County is derived from the important industries in this city and the rich farms in this section of the state. Within the past year the income of car purchasers has increased at least 25 per cent, and dealers feel that judging from the interest manifested the 1918 season will be a record breaker. Cars selling between $1,200 and $1,500 are principally in demand. Three per cent on all car sales and ticket sales will be required to be paid to the Government as income tax.

Accessory dealers at the show expressed themselves as being pleased with the results of the show, and anticipate a bigger business than ever this coming spring and summer. Dealers of the association who were at first not in favor of holding the show owing to unsettled conditions brought about by the war, have since changed their minds and made converts to the idea of more aggressive business.

Brisk Used Car Trade Is Developing in West

Cars Moving Rapidly in Business Centers with Good Demand from the Country

KANSAS CITY, April 8—An unusually large trade is developing in used cars in the Kansas City territory. For the past few weeks Kansas City dealers have been moving used cars very rapidly in local trade, and very recently there have been many dealers in from the surrounding country buying up whatever cars they profitably can handle. One Kansas City dealer sold about $9,000 worth of used cars to one of these Kansas garagemen. A Kansas City distributer who is not able to supply new cars to his dealers is advising them to pick up all the cars they can get hold of that can be fixed up into serviceable vehicles.

The first effect of this distribution of used cars is to increase their price. Price level is very generally now where it means a profit to the handler, even where he previously has not figured on such a profit. An effect which is expected shortly is that the allowances for used cars may be increased.

"We don't intend to increase the allowances for used cars in making our sales of new cars," said one Kansas City dealer. "But we do expect that we will make a little bit more money on them now."

Several of the most successful Kansas City distributers are carefully advising their dealers to be sure to put the used cars in good condition before selling them. They are pointing out that the profit is greater when a car can be sold in good shape to run and looking right, and that the satisfaction of the customer is an important asset in view of the possibility of further sales later when new cars are more easily available.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

J. F. Richman, factory manager of the Cole Motor Car Co.,, Indianapolis, has resigned to accept the position of manufacturing manager of the Allen Motor Co., Fostoria, O.

L. E. Wood, who was a designer for the Cadillac Motor Car Co., Detroit, has been appointed assistant chief engineer of the Mitchell Motors Co., Racine, Wis.

Stephen D'Orlow has been appointed research engineer of the Republic Motor Truck Co., Alma, Mich. He was formerly chief engineer of the Oak Manufacturing Co. of the same city.

W. E. Dunston, formerly chief engineer of the Standard Parts Co., Cleveland, has accepted a position with the Crown Hardware Mfg. Co., Dayton.

Thomas P. Myers, who for the past year and a half has been vice-president and sales director of the General Engineering Co. and the Doble-Detroit Steam Motors Co., Detroit, has resigned and will probably take up government work.

Langdon A. Smith has been appointed assistant director of sales for the Maxwell Motor Co., Inc., Detroit. He was recently general eastern supervisor of the Maxwell company, with headquarters in New York City.

John D. Wilson has been appointed assistant chief engineer of the carriage division of the Packard Motor Car Co., Detroit, succeeding G. H. Brodie, who has been transferred to the aircraft engineering staff. Wilson has been assistant carriage chassis engineer.

M. A. Hoolinshead has been appointed to take charge of the advertising for the Saxon Motor Car Co., Detroit.

W. O. Duntley has resigned as president of the Chicago Pneumatic Tool Co., Chicago, manufacturer of the Little Giant truck. The reason given is his desire to be relieved from active management in order to devote more time to private business. Duntley's successor has not been announced.

Herman S. Helander, assistant branch manager of the Kelly-Springfield Tire Sales Co., Hartford, Conn., has been promoted manager of the Stamford branch of E. J. Todd. Todd operates a string of stores in Connecticut and Massachusetts.

G. A. House has resigned as sales manager of the Auto Wheel Co., Lansing, Mich., to assume similar duties for the Hayes Wheel Co. of Jackson, Mich.

F. H. Rees of the Willys-Overland branch in Springfield, Mass., has been transferred to the New York City branch.

H. J. Brockman, recently with the National Brewing Co., St. Louis, has been named manager of the tire department the Moerschell Electric Co. is opening in St. Louis.

F. M. Hoagland of the Sterling Tire Co. is opening a branch for that company at 2824 Locust Street, St. Louis.

J. E. Eckenrode has been appointed central district sales manager of Fuller & Sons Manufacturing Co., Kalamazoo, with headquarters in Detroit, succeeding Gould Allen, who resigned April 1 to become manager of the Detroit office of the Wetzell-Hall Co.

L. C. Reynolds, formerly manufacturing superintendent of the General Vehicle Co. of Long Island City, has joined the forces of the General Motors Corp. in Detroit.

T. W. Wilson, Jr., has formed the Wilson-Nash Motor Co. at 138 West Mt. Royal Avenue, Baltimore. Wilson formerly headed in Baltimore the Wilson Motor Co., Maxwell and Mitchell distributer, and was also for a number of years with the Locomobile Co.

J. W. Bayard, for a number of years representative of the United States Motor Truck Co. and who was in charge of the sales for Riordan Brothers, Baltimore distributers for the line, has resigned from the concern. He has not decided upon his future course.

Addison DeGoll, one of the Baltimore pioneer truck salesmen and who has been in charge of the truck department for the United Auto Sales Co., Garford distributers, has become assistant to W. W. Smith, sales manager of the Garford Co., Lima.

Donald Anthony, manager of the Baltimore branch of the Locomobile Co., has resigned and joined the aviation corps. F. B. Wilson will arrive in Baltimore to succeed him in charge of the branch.

Nicholas J. Poehlman, who was the Baltimore manager of the Pathfinder Sales Co., is in aviation training at Kelly Field, Tex.

W. E. Duck, Jr., son of W. E. Duck, Baltimore Winton manager, and who was one of the truck tire salesmen for the Baltimore Firestone branch and who is at Borden Field, Canada, learning aviation, is ill from scarlet fever and mumps.

J. S. Hochheimer, formerly in charge of the used car department of the United Auto Sales Co., is serving Uncle Sam in the Commissary Department at a New Jersey camp.

R. W. Sykes, Jr., has joined Diuguid Brothers, Brooklyn, N. Y., distributers in that territory for the Hupmobile and Liberty.

G. Hilton Gantert, for fourteen years in the automobile trade and well known as the distributer of Stearns and Oldsmobile in Philadelphia, has been appointed to the sales organization of the Stability Motors Co., the new agency in the Bellevue Court Building, Philadelphia, whose head is E. J. Berlet. This agency handles the Atlas, Atterbury and Old Reliable trucks and United tractors.

H. W. Bundy, formerly factory manager of the Diamond Mfg. Co. before its consolidation with the Motor Products Corp., Detroit, and who since has been manager in charge of the stamping division of the latter company, has resigned. He has not yet announced his future plans.

Fred R. White, formerly first vice-president of the Baker R. & L. Co., Cleveland, has been elected president, succeeding Charles L. F. Wieber, who was elected chairman of the board of directors, retiring from active participation in the business. **E. J. Bartlett** has been elected first vice-president and general manager to fill the place vacated by White.

Shontz Buys Splitdorf Battery Business

NEW YORK, April 4—The Splitdorf Electrical Co. of New York is to withdraw from the storage battery field. It has been manufacturing Apelco batteries but will discontinue this branch of its business. The H. B. Shontz Co., 157 West Fifty-fourth Street, New York, distributer and Central Service Station for U. S. L. batteries, has purchased the entire battery stock and equipment of the Splitdorf company and hereafter will distribute all parts for Apelco batteries used for ignition and lighting and starting.

War Service Committee To Meet

ST. LOUIS, April 8—A meeting of the War Service Committee of the National Automobile Dealers' Association has been called by President Vesper at the Congress Hotel April 11. This meeting is called on request from Washington authorities, and will be held in connection with the sixth annual meeting of the Chamber of Commerce of the United States. April 11 will be devoted to work of the "war service group," and President Vesper is chairman of the committee selected to represent the various automobile dealers' associations.

At the request of the American Academy of Political and Social Science the following motor car dealers were named by President Vesper to attend the annual meeting of that body in Philadelphia April 26 and 27: A. E. Maltby, Philadelphia; J. H. Johnson, Boston, and G. A. Forster, Cleveland.

J.-M. Moves Youngstown Office

NEW YORK, April 8—The H. W. Johns-Manville Co. has removed its Youngstown, Ohio, office to 520 Market Street.

Motor Securities Quotations

	Bid	Asked
*Ajax Rubber Co.	53	55
*J. I. Case T. M. Co., pfd.	83	86
Chalmers Motor Co., com.	6	8
Chalmers Motor Co., pfd.	30	40
*Chandler Motor Co.	82	85
Chevrolet Motor Co.	119	120
*Fisher Body Corp., com.	33	35
*Fisher Body Corp., pfd.	76	83½
Fisk Rubber Co., com.	50	53
Fisk Rubber Co., 1st pfd.	98	103
Fisk Rubber Co., 2d pfd.	70	75
Firestone Tire & Rub. Co., com.	92	95
Firestone Tire & Rub. Co., pfd.	96	98
*General Motors Co., com.	118	121
*General Motors Co., pfd.	80½	82
*B. F. Goodrich Co., com.	43½	45
*B. F. Goodrich Co., pfd.	99½	100½
Goodyear Tire & Rub. Co., com.	136	139
Goodyear Tire & Rub. Co., pfd.	97	99
Grant Motor Car Corp.	3	4
Hupp Motor Car Corp., com.	3	3½
Hupp Motor Car Corp., pfd.	84	88
International Motor Co., com.	22	26
International Motor Co., 1st pfd.	52	58
International Motor Co., 2d pfd.	23	28
*Kelly-Springfield Tire Co., com.	41	43
*Kelly-Springf'd Tire Co., 1st pfd.	75	85
*Lee Rubber & Tire Corp.	12¼	13½
*Maxwell Motor Co., Inc., com.	25½	27
*Maxwell Motor Co., Inc., 1st pfd.	53	54
*Maxwell Motor Co., Inc., 2d pfd.	19½	22
Miller Rubber Co., com.	108	112
Miller Rubber Co., pfd.	96	98
Packard Motor Car Co., com.	92	97
Packard Motor Car Co., pfd.	89	92
Paige-Detroit Motor Car Co.	17	18
Peerless Truck & Motor Corp.	14	16
Portage Rubber Co., com.	104	107
Regal Motor Car Co., pfd.	..	..
†Reo Motor Car Co.	16	17
*Saxon Motor Car Corp.	6	9
Springfield Body Corp., com.	..	..
Springfield Body Corp., pfd.	..	..
Standard Motor Construction Co.	12½	13
*Stewart-Warner Speed. Corp.	54	56
*Studebaker Corp., com.	40½	41½
*Studebaker Corp., pfd.	80	90
Swinehart Tire & Rubber Co.	25	40
United Motors Corp.	25¾	26
*U. S. Rubber Co., com.	54½	56
*U. S. Rubber Co., pfd.	103	105
*White Motor Co.	42	43
*Willys-Overland Co., com.	17½	18½
*Willys-Overland Co., pfd.	79	81
Standard Parts Co.	68	70

*At close April 6, 1918. Listed New York Stock Exchange. †Par value $10.

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Hartford Mixes Cars, Trucks and Tractors

Good Crops of "the Filthy Weed" Are Going to Help Sell a Lot of Cars in Connecticut

HARTFORD, April 6—Fourteen makes of fours, twenty-three of sixes, five of eight and two of twelve-cylinder passenger cars were displayed in the eleventh annual automobile show of the Hartford Automobile Dealers' Association, Inc., which concluded this evening at the state armory on Broad Street. The show, generally accepted as the best ever given by the Hartford Dealers' Association, brought out 31 exhibitors of passenger cars. Twenty-one makes of trucks were displayed. Three tractors and one trailer were shown.

It was the first year for tractors. And the tractor representatives passed up a wonderfully good opportunity to demonstrate. The expansive east parade ground of the state militia which used to be a well-kept green lawn is now bare ground due to the presence at mobilization of the state troops, who wore down the grass. The armory authorities were willing that the tractors show should plow up this ground and harrow it.

There is no denying the fact that far greater benefits would have been derived had the tractors been so employed, for they would have attracted the attention of many who did not visit the show and would have gained publicity not to be had in any other way. As it was the tractors reposed restfully in their respective quarters.

Show Manager Ben F. Smith said this evening that as near as the show committee was able to determine attendance during the week would approximate between 25,000 and 30,000. This is about the same as last year, it was said.

The association had to pay a tax to the Government, but how much was not stated. On all admission tickets a war tax of 3 cents was imposed. The admission was 25 cents.

The show committee did not state just what the income will be this year as compared with a year ago other than to assert it will be about the same. The attendance was light until Thursday. The British tank Britannia was demonstrated at Pope Park at noon and after noon got out thousands of people. There was an automobile parade in the evening. At 8 o'clock there were very few people in the armory. At 9 o'clock there was hardly standing room.

Some retail sales were made at the show. However, most sales were closed outside the show and in the salesrooms. Every dealer had a sizable display at his salesroom. Prospects were taken back to the home quarters.

An opinion frequently expressed was that the show was held too late. Factory representatives who had followed the circuit this season referred to the local display as one of the very best layouts this year.

Nearly all of the dealers have unfilled orders. The difficulties presented are in getting cars rather than in selling them. Every dealer has arranged to run cars over the road. A startling instance of this is the engagement by Russell P. Taber, Inc., Reo, Duplex and Republic distributer, of practically entire sleeping car accommodations on the Wolverine out of Springfield every Sunday night for the next twelve weeks. All of Taber's cars will come overland.

The outlook for business throughout this territory, and when the term territory is used all of Hartford County is implied, is very good. Tobacco farmers throughout the county cleaned up on their crops in royal fashion. Every dealer regards a farmer as his best prospect. There are very few farmers in the county to-day but that can afford a car. Packards are not uncommon among the tobacco growers. Hartford is a rich city, the logical mart for practically all of Hartford County. Shopmen are making big wages. Many are buying the lower-priced cars.

The truck situation was never better than right now. Long hauls are very frequent. Hauling by motor truck has become the accepted method.

There was much opposition to a show this season. One faction desired to eliminate it altogether because it was deemed a backward season, also because of the likelihood of a big drive in Europe about show time as well as a third Liberty Loan drive. The drive panned out as predicted and the Liberty Loan drive started in the last day of the show.

The dealers appointed a committee with Fred W. Dart as head chairman. Every car in the show bore a Liberty Bell. A booth was arranged for the sale of bonds and negotiations entered into with the Dime Savings Bank to finance the proposition. Good results followed. Saturday evening Major E. Alexander Powell, who is stationed at the Springfield, Mass., armory, spoke on the war in Europe and brought out a crowd. So, all things considered, the opposition hardly prevailed.

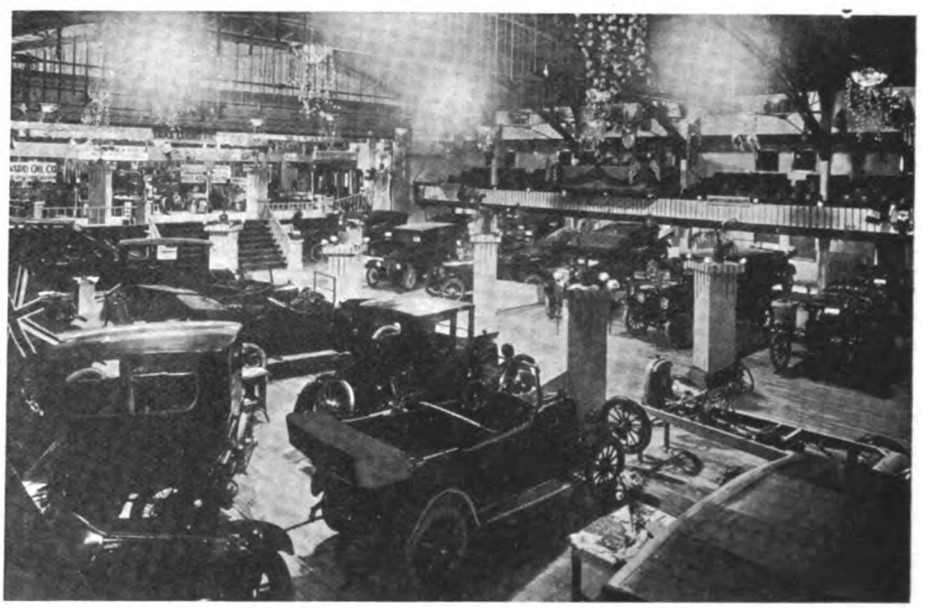
E. C. Bowman, general manager of the Hartford branch of Willys-Overland, Inc., gave a dinner to twenty-eight Overland distributers in celebration of the biggest month's business in the history of the concern. The dinner was given at the Hotel Heublein.

A Packard dinner was given at the Bond Thursday evening in honor of E. S. Hare, president of the Packard Motor Car Co. of New York, and Roger J. Gilmore, vice-president of the same concern.

A number of sub-dealers were appointed at the show. A new truck agency, that of the International Harvester Co. line, was placed with the Hartford Buick Co.

New Ruling on 3 Per Cent Tax

WASHINGTON, April 3—A new ruling has been handed down by the Treasury Department at Washington with regard to the 3 per cent tax on motor cars. The ruling is that branch houses shall be treated as factories so that when a branch house sells a car it will have to pay the 3 per cent tax on the retail price the car is sold at. This new ruling is directly opposed to the earlier understanding of the law and is considered very unjust by the N. A. C. C. The ruling has come from the deputy commissioner at the Treasury Department in Washington, and is being protested by the N. A. C. C.



Who says the small town can't hold a successful show? Witness the exhibition put on by Holdrege, Neb., which has a population of 4000. The first night 7000 visitors thronged the show. Where did they come from?

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Distribute Fordson Tractors Direct

1000 Machines to Be Sold to Farmers Who Must Agree to Use Them Efficiently

THE 1000 Fordson tractors which the Michigan War Preparedness Board will distribute to Michigan farmers are being sold direct to the farmers by the state at a uniform spot cash price of $750, f.o.b. Dearborn. Orders are being taken and tractors are being distributed by county agricultural agents and by chairmen of local War Preparedness Boards. These officials look also after the collection of the purchase price, which ultimately reaches Henry Ford & Son through the Central War Preparedness Board at Lansing. The Oliver tractor plows which complete the equipment are being distributed through the local retail implement dealers at points of tractor distribution at a uniform spot cash price of $125 delivered.

An important feature of the plan, one which appealed strongly to both Ford and to Governor Sleeper, and one which inspired both to undertake the experiment, was the community co-operation idea. The form of order which the farmer signs for his tractor binds him to lend his tractor at a reasonable price for the benefit of his neighbors whenever he can spare it from his own needs.

This obligation which the farmer assumes is more moral than legal in its force, since it will be impossible to enforce it, but it will have force nevertheless. Compliance with it will be increased by the activities of the officials who have charge of the distribution of the tractors, since they will interest themselves to the extent of watching opportunity to keep the machines constantly in use. Without any doubt many more acres will feel the good effects of tractor tillage through this provision in the contract than would otherwise have been the case. Thus in a measure at least this ideal of community use will have been attained.

The new Oliver No. 7 tractor two-bottom gang plow was designed originally for use with the Ford tractor in England and Canada. As a matter of fact, several thousand of them have been shipped abroad and 1000 are going into Canada. Inasmuch as the Oliver company had no dealer organization to protect in England, and as all service responsibility ceased as soon as the plows were delivered to the transportation company at South Bend, Ind., the Oliver company made a price to the English government of $97.50, f.o.b. South Bend. The same price and terms applied to the Canadian consignment.

The Oliver plows will not accompany the tractors from the Ford factory, but will be shipped from South Bend directly to retail implement dealers at the points where the tractors were to be distributed. According to the original sales plan on this special plow worked out by the Oliver Chilled Plow Works it was to have been sold to the dealer at $125.

As a protection to their dealer organization in Michigan, where they have some 600 agents, the Oliver Chilled Plow Works insisted that no lower price would be considered or sanctioned. However, as a special concession in the Michigan deal and as a compromise proposition to the Governor, the company agreed that the price to the farmer on these 1000 plows might be the dealer price of $125, and a special discount of 12½ per cent would be given to the dealer and the freight allowed.

Settlement in cash at the time of delivery was insisted upon by the company so that the dealer should incur no credit risk, and all responsibility for and expense of expert service was assumed by the company. This proposition was acceptable to the Governor, and the Oliver plows are now being delivered in accordance therewith.

The Oliver No. 7 two-bottom gang plow is especially designed for use with the Fordson tractor. By the use of a heat-treated alloy steel the weight of the plow has been reduced 25 per cent below that of any engine gang of similar capacity on the market. It is also exceedingly simple in construction and easy of operation. The lifting device and the depth regulating feature are new and effective. By an arrangement of the plow levers these are brought within easy reach of the tractor operator, making the outfit strictly a one-man unit.

Collectively the distribution of tractors and plows in Michigan is the biggest thing of the kind ever undertaken in the history of American agriculture and has a significance and importance tremendous in its import. It has furnished the occasion for manufacturing industry, national and state officials and individual interests to demonstrate their patriotic impulses with a spontaneity and with a singleness of purpose never before witnessed. It furnished the opportunity for a manufacturing wizard to put his genius for factory organization and production at the service of his country at a time of imminent emergency.

Liberty Truck Convoy Reaches Baltimore

BALTIMORE, April 3—The first convoy of Liberty trucks arrived here at noon March 29 from Lima, Ohio. Twenty trucks and 3 passenger cars with a company of 42 men comprised the convoy. An additional 10 trucks left Lima with the convoy, but turned from the Eastern Highway toward Fort Sherman, where they will form a part of the motor transport equipment. The 20 trucks now temporarily stationed at the Mechanical Repair here will go forward within a day or two to Camp Devens, Mass., and to Camp Meade, Md., each camp securing 10 of the trucks.

The journey overland was decidedly successful. Owing to a misunderstanding, the trucks were cleared from Lima without extra repair parts, but the trip was negotiated successfully despite this. Each truck weighed 10,570 lbs. and sixteen of them carried an average of 17,000 additional pounds in the form of 50 tons of cases of Garford spare parts. These were originally scheduled for freight shipment to the Baltimore repair depot, but owing to freight troubles it was decided to send them on with the convoy.

The entire journey took 8 days, the convoy leaving Lima Thursday noon, March 21, covering practically 600 miles at an average of 70 miles per day. No serious troubles developed on the trip. Some minor adjustments were necessary, such as cleaning of a carbureter, changing of spark plugs and so forth, but no serious fault in the mechanism developed.

The men of the Liberty truck company did their work before retiring, thus making ready for early morning starts, while the men of the Michigan company worked early in the morning at cleaning, adjusting and so forth and thus lost time.

The trucks averaged 4 miles per gallon except in a stretch of heavy mud, where the consumption was cut to slightly below 3 miles per gallon.

One of the trucks was used as a mess wagon and carried the stove and eating utensils that provided meals for the men when it was not possible to reach a town at meal time. The Red Cross provided excellent food in most of the cities and each night as the convoy made its stop the city selected turned over the town hall or some other large quarters.

The cities used for night stops on the journey included in the order named: Fremont, Ohio; Bedford, Canfield, Darlington, Greensburg, Pa.; Stoyestown, Everett, Chambersburg, Baltimore. The trip from Chambersburg to Baltimore, through Gettysburg and Westminster, to the camp at Baltimore, a distance of 100 miles, was made between 3 a. m. and 1:30 p. m.

Low speed was never resorted to in the entire journey, second sufficing in all instances to make the grades. The chief trouble was with stiff engines, all of the trucks when first leaving Lima displaying such stiffness that towing was resorted to.

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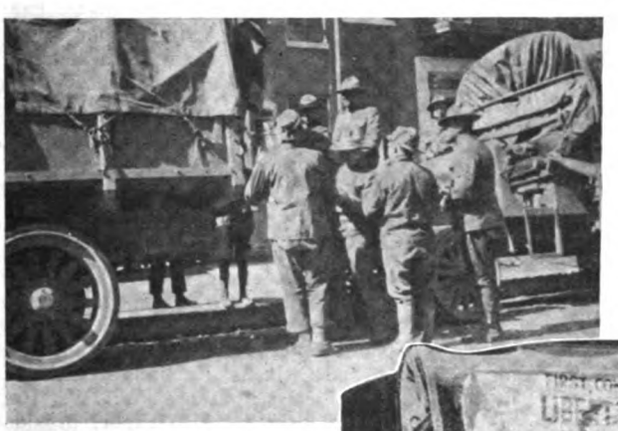
Views Along the Route of the Liberty Truck Convoy



The convoy lined up on one of the streets at Westminster, Pa.



A panoramic view of the convoy as it neared Baltimore



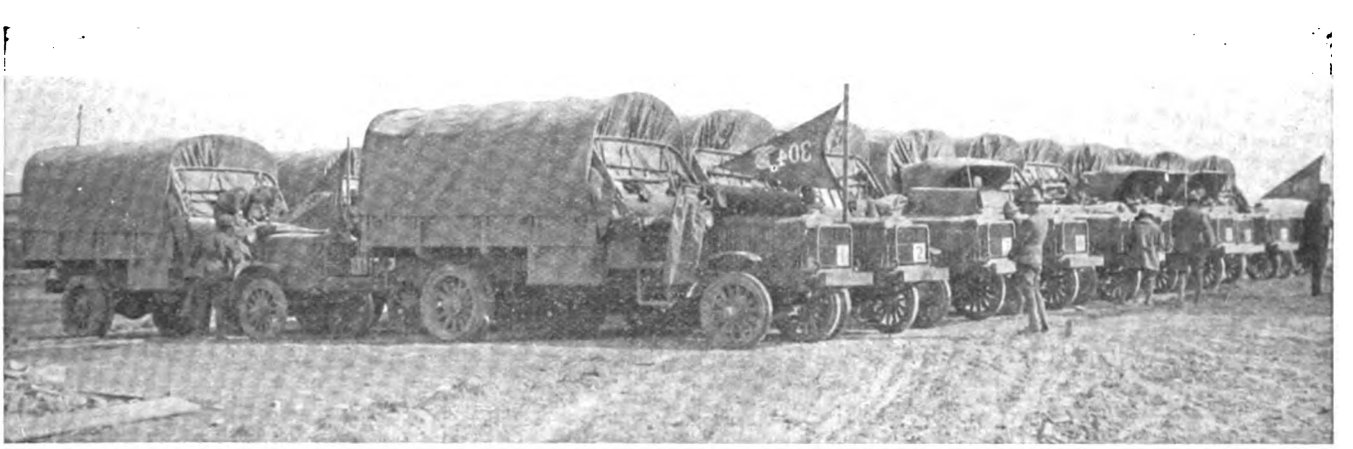
One truck served as a mess wagon, carrying food and cooking utensils



The head truck in Company 301, in which there are 100 trucks



On the sides of some of the trucks were signs which read "On the Way to Berlin"



The drivers were always very careful of their trucks, even cleaning them en route

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Demand for Vehicles Increases in the South

Cars, Trucks and Tractors All in Great Favor—Dealers Optimistic for 1918

GREENSBORO, N. C., April 4—Dealers report continued interest and activity in motor vehicles. This applies to passenger and utility cars as well as to farm tractors and trucks. There is an especially lively demand for the smaller cars on the part of professional men.

It is now apparent that the action of the Government in curtailing transportation facilities is going to result in the sale of large numbers of cars.

All roads leading to the army encampment cities in the South are becoming choked with automobiles carrying relatives and friends to see the soldiers.

Probably never before in the history of the South has there been as much travel and contemplated travel over the dirt roads at any season, and certainly nothing to approximate it in the summer time, which is usually the season when the tourists are turning their eyes in the other direction.

It is already recognized by the dealers that in all probability there will not be enough cars during the balance of the summer and the early fall to meet the demand, not only because the manufacturers are turning their plants into the making of munitions and cars for the Government, but because the cars cannot be delivered by the railroads even if they are available at the manufacturing centers.

Because of these conditions a considerable impetus has recently been given to the trade in used cars. Anything that can stand on its wheels and run is salable, and usually fairly good prices are to be secured. A number of dealers are beginning to specialize in used cars and a brisk business is being developed.

Farmers continue in the field as purchasers of trucks and tractors. Labor conditions in the South are forcing them to the use of mechanical power in place of the usual negro labor, which is becoming more and more unsatisfactory, besides being hard to obtain.

The draft has, of course, taken a large percentage of the able-bodied white boys from the country districts, with the result that the farmer had to depend exclusively upon the negroes for the necessary farm work. And when the negroes on their part deserted him, he was forced to turn his attention to mechanical power; and when these machines have once been purchased and demonstrated he will not put himself again in the hands of so unstable a quantity as the average black man.

Trucks and tractors are selling freely, and many of the purchasers are also buying automobiles for the use of their wives and daughters. These will come into town in the future to do their purchasing in these cars instead of in the old family dray or spring wagon as heretofore.

Dealers in the South are not complaining at the state of the automobile industry as much as at the state of the railroads. If the automobiles could be manufactured and transported, it is probable that the South would experience the biggest year in its history in the matter of automobiles. Dealers are satisfied that they will have no trouble in disposing of all the cars they can get.

New Names for Old Colors

THE Ditzler Color Co., Detroit, Mich., is issuing its 1918 colors with new names. Most of them are war names. For instance, there is infantry blue, khaki brown, misto'marne, cavalry yellow, and all sorts of names like that. While some of the colors seem to be new shades the man who has been painting automobiles will be inclined to believe that he has seen some of these colors before. Nevertheless the new names are fine advertising and fit in well with the work of the man who is trying to tell people that they ought to have their old cars repainted.

Price on Parts Being Labeled

BROCK GARAGE, Trenton, N. J., has on the label on each bin in its parts stockroom the price of the part. The man who takes a part out of stock does not have to look in the catalogue or anywhere else to know the figure at which he should invoice it to the customer. The figure is right there in front of him when he picks the part out.

Liberty Trucks to Parade

WASHINGTON, April 4—Two full companies of Liberty trucks and National Army soldiers will enter the Liberty Loan parade at Cleveland on April 6.

Preston Cars and Trucks From Birmingham

New Company Is Manufacturing ¾-Ton Truck to Sell for $1,000 and $600 Light Car

BIRMINGHAM, ALA., April 5—Within 60 days the Preston Motor Car Co., organized in Birmingham and financed largely by Alabama, Mississippi and Florida capitalists, will begin the manufacture of light cars and ¾-ton trucks in this city. Inside of twelve months, officers of the company state, they will be giving employment to between 4000 and 5000 skilled laborers. A 7-acre tract, formerly the property of the Birmingham Boiler Works, has just been acquired for $30,000.

Parts of the first Preston car are now being manufactured at the plant of the Sandusky Forging Co., Sandusky, Ohio, but the first car will not be put together until the Birmingham plant has been made ready for its assemblage.

The passenger car will sell for $600 f.o.b. Birmingham, and was designed by W. H. Tarpley of Newark, N. J. The truck will sell for $1,000.

Officers of the company are: Charles E. Dexter, president; P. L. Sturkey, vice-president; E. E. Cobb, secretary; Niles G. Parker, treasurer, and Judge C. C. Smith, general counsel.

The directors are: E. S. Hugger, Montgomery; J. B. Fielder, president of the Bank of Opelika; R. M. Addison, Montgomery; E. A. Copeland, president of the Citizens' Exchange Bank of State Line, Miss.; Judge W. W. Brandon, Tuscaloosa; H. E. Graper, president of the Citizens' Bank of Lexington, Tenn.; E. C. Mainous, cashier of Peoples' Bank, Appalachia, Va.; G. E. Lindsey, Elba, Ala.; D. R. King, Hosford, Fla.; E. E. Cobb, Niles G. Parker, W. L. Sturkey and Charles E. Dexter.



IN order to secure publicity at a time when the need for labor was being emphasized in Worcester, Mass., Sales Manager F. G. Parker of the Studebaker branch in that city fitted up a Studebaker commercial car with a nice grinding machine and took it out to a lumber camp where it ground axes for lumbermen who were engaged in cutting wood for fuel and other purposes. The stunt secured a lot of publicity in the newspapers for the Studebaker car.

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If You Could—

If you could go to 100 others in your business and get their ideas it would be a mighty profitable trip for you, wouldn't it?

But it would cost you a lot of time and money, wouldn't it?

How nice if you could talk with 100 dealers at once.

You can.

How?

In the Summer Merchandising Number of Motor World—which will be with you in just 14 days more.

It will give you the best ideas of many men.

Watch for It!

Order your extra copies NOW.

5000 Draft Registrants Called for Air Service

Men from Middle West to Receive Thorough Mechanical Training Before Assignment to Duty

WASHINGTON, April 4—Five thousand draft registrants were called this week to assist in the maintenance of America's air fleet. A call for men was made on Illinois, Minnesota, Iowa and Indiana. A thorough training course in woodworking and gas engine operation and repair will be given these men at 14 educational institutions selected by the Government. Voluntary induction will be tried, but where the states fail to produce the required quotas men will be conscripted.

Registrants must have at least a grammar school education to their credit. Assignments to duty will be made according to ability shown. The schools and quotas of each state are as follows: Minnesota, 300 men to Carnegie School of Technology, Pittsburgh; 500 men to University of Cincinnati, 500 to University of Minnesota, 189 to Pennsylvania State College and 330 to University of Pittsburgh; Illinois, 100 men to University of Chicago, 200 to Lewis Institute, 100 to Northwestern University, 300 to Bradley Polytechnic Institute; Iowa, 100 to New York University, 400 to Wisconsin University, 500 to the Auto and Tractor School, Kansas City, and 500 to the Sweeney Auto School, Kansas City; Indiana, 500 men to Purdue University. The above schools have been selected following thorough investigation of the country's educational institutions by the Federal Vocational Board.

St. Paul Dealers to Aid Red Cross

ST. PAUL, April 5—Leroy Eschner, president of the St. Paul Automobile Trade Association, at a recent meeting urged that all automobile dealers and garagemen cooperate in every way possible with the Red Cross Salvage Bureau, by converting into cash old tires, broken parts, etc. After two weeks' trial the results were fine.

"It would be a glood plan," states Eschner, "for all dealers and garage associations throughout the country to cooperate and assist the Red Cross in this manner. The St. Paul Automobile Trade Association will be pleased to furnish any information which will be of assistance to any organization desiring to convert junk into cash."

Ohio Pushing Organization

CLEVELAND, April 4—The Ohio Automobile Trade Association is conducting a membership campaign in northern Ohio. Quite a number in this section have joined. An organization of garagemen has been formed in Cleveland and an effort is to be made to secure the affiliation of all interests.

The Only Way Out

(*Continued from page* 28)

trades so that money will not be lost as it is to figure out any other part of the business. The only way is to find what the car will sell for when fixed up and then take it in at such a figure that it can be fixed and resold at anything but a loss.

Some dealers plan to resell the old car at a profit. Most of them still plan only to break even.

If there is any tendency towards any particular method it might be said that it is towards selling used cars at a profit instead of a break-even. There is every reason why the used car department should be made to pay a profit, small though it may be at first. It is something that CAN be done—as has been demonstrated by the few who are doing it.

All that is required is a firm determination to do it—and a little business planning plus salesmanship.

Texas Dealers Meet in Second Convention

Session Held in San Antonio—F. A. Winerich Elected President for 1918

SAN ANTONIO, April 5—The second annual convention of the Texas Automobile Dealers' Association, which came to a close here last week, elected the following officers for the ensuing year:

President: F. A. Winerich, San Antonio; vice-presidents, Roy Munger, Dallas; H. H. Bryant, San Antonio; George Conant, Houston; treasurer, W. F. Rose, Dallas; directors: W. G. Langley, Dallas; Hob Diggs, Fort Worth; H. L. Miller, San Antonio, and P. G. Stokes, Big Springs.

Resolutions were adopted heartily indorsing bills passed by the special session of the Texas legislature amending the highway law providing for quarterly instead of semi-annual state automobile license fees; also providing for collection of automobile fees by county tax collectors and delivery by them of certificates of renewal and reports by them of new numbers.

Houston was selected as the place for holding the next annual meeting.

The convention was largely attended by dealers from all over the State. The opening session on March 26 was called to order by Chairman Frank A. Winerich of the local entertainment committee, who introduced President B. R. Webb, of the San Antonio Dealers' Association. Webb spoke briefly and then called on Mayor Sam C. Bell, who formally welcomed the convention to the city.

Nominating Committee Appointed

Closing his official report, president J. E. Butler appointed the nominating and resolutions committee, which went into session immediately at the adjourment of the morning meeting, and reported at the afternoon session. Frank A. Winerich headed the nominating committee, with H. L. Robertson of Houston, J. E. Osborne of Paris, W. T. Herrick of Waco, and C. E. Bancroft of Corpus Christi as committee members. On the resolutions committee were J. R. Murkeson, D. T. Reed and W. T. Herrick. Committees appointed, the president called for the secretary's and treasurer's reports.

C. L. Zutavern of Dallas, state secretary, made other reports, speaking also for W. R. Rose of Dallas, treasurer. The expenditure of five hundred dollars last fall for a Liberty Bond was the outstanding feature of the treasurer's official report.

At the second day's session F. W. A. Vesper, president of the National Auto Dealers' Association and chairman of the War Service Board with relation to the motor car industry, told at length the accomplishments of the latter body in Washington and of its present work and future plans.

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-62	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	1595	....	1595	2150	2150	....	....
ALLEN																	
Series 41	4-3¾x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1145	1095	....	....	1395	....	....
AMERICAN																	
B	6-3½x5	23.4	G & D	Zenith	G & D	DD	3	122	32x4	SS	1645	1595	1695	....	....	....	....
ANDERSON																	
20	6-3½x4½	25.3	Conn	Zenith	Wsths	DP	3	120	33x4	SS	**1465	....	....	....	2165	....	....
400-F	6-3½x5½	29.4	Bosch	.....	.....	DD	3	...	....	....	**1925	....	....	....	....	....	....
APPERSON																	
8-18	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	34x4	SS	†2550	....	2550	....	....	....	....
AUBURN																	
6-39-B	6-3½x4½	25.3	Remy	Rafld	Remy	DP	3	120	34x4	SS	1345	1345	....	....	....	....	1595
6-44	6-3½x5½	29.4	Delco	Rafld	Delco	DP	3	131	35x4½	SS	....	1685	1685	....	2450	....	1985
AUSTIN																	
Hy-King	12-2¾x5	39.6	Delco	Stmbg	Delco	D	6	142	34x4½	QD	3750	3750	4000	4550	5000	5250	....
BELL																	
18	4-3½x4½	22.5	A.Kent	Zenith	Dyneto	D	3	114	32x3½	QD	†995	995	....	....	....	....	....
BIDDLE																	
H	4-3½x5½	22.5	Eisman	Zenith	G & D	DP	4	121	32x4	QD	2600	....	†2650	....	4100	4000	....
BOUR-DAVIS																	
18B	6-3½x5½	29.4	West.	Stmbg	West.	DP	3	118	33x4½	QD	....	1785	....	....	....	....	....
	4-3½x5½	22.5	West.	Rafld	West.	DP	3	118	32x4½	....	....	1680	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	5500	....	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3½x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	825	825	....	....	....	....	850
BUICK																	
E 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	1185	1845	....
E 44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	....	†1695	....	....	1265
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	{132 / 125	35x5 / 34x4½	SS	2805	....	2805	....	3650	4145	....
CASE																	
U	6-3½x5½	29.4	Wsths	Rafld	Wsths	D	3	125	35x4½	SS	†1875	....	1875	....	**2375	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wsths	DP	3	{117 / 122	32x4 / 34x4	SS	1565	1565	1615	....	1950	2925	....
CHANDLER																	
	6-3½x5	29.4	Bosch	Rafld	Wsths	DP	3	123	34x4	SS	†1595	†1675	1595	2195	2295	2895	....
CHEVROLET																	
490	4-3½x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3½	C	660	685	....	....	1060	....	....
FA	4-3½x5½	21.7	Remy	Zenith	A-Lite	C	3	108	33x4	SS	935	935	....	....	1475	....	....
D	8-3¾x4	36.4	Remy	Zenith	A-Lite	C	3	120	34x4	SS	1385	1385	....	....	....	....	....
COLE																	
870	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	33x5	SS	2395	1995	2195	2495	{2595 / 2795	....	....
COLUMBIA																	
C&D	6-3½x4½	25.3	A.Kent	Stmbg	W.Lnrd	DP	3	115	32x4	....	†1495	1350	....	....	2395	....	....
COMET																	
C-50	6-3½x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	....	....	....	....	1285	....	....	....
COMMONWEALTH																	
4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	115	32x3½	SS	†995	995	....	....	....	....	....
CROW-ELKHART																	
CE-36	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114	32x3½	SS	995	995	....	1295	1395	....	....
CUNNINGHAM																	
	8-3½x5	45.0	Delco	Stmbg	West	D	3	{132 / 142	35x5 / 37x5	....	....	4250 / 4750	....	....	....	....	....
DANIELS																	
B	8-6½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	3250	3250	3250	....	....	....	....
DAVIS																	
H, I, K	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1485	1485	....	1850	....	....
J, I	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	125	34x4½	....	....	1785	1785	....	....	....	....
DISPATCH																	
	4-3½x5	22.5	Bosch	Rafld	U.S.L.	CU	4	120	36x3½	QD	1150	....	1250	1400	1400	....	....

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	830	....	....	1095	....	....	865
B	6-3½x4½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	1050	1050	*1050	1650	1650	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3750	3700	3750	....	5180	5250	....
MAXWELL																	
25	4-3½x4½	21.0	A.Kent	K D	Simms	C	3	109	30x3½	C	‡825	825	....	....	1275	{1275 / 1175}	935
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wsths	DP	3	136	35x5	QD	3900	3900	3900	....	5000	5050	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3500	*3500	....	....	....	....	....
METZ																	
25	4-3½x4	24.0	A.Kent	A.W.T.	Wsths	F	.	108	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.3	Conn	Rafld	Splitdf	C	3	120	32x4	SS	1250	1250	....	1850	1950	....	300x
C-42	6-3½x5	29.4	Conn	Stmbg	Wsths	C	3	127	34x4	SS	‡1490	1510	1525	2135	2275	2850	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1650	1650	....	....	2280	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1985	....	1985	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	110	32x3½	SS	995	995	....	....	....	....	....
J	6-3½x4½	25.3	Conn	Stmbg	Dyneto	D	3	117	33x4	SS	1295	1295	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	31x3½	QD	565	‡635	....	....	965	....	....
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x3½	QD	....	995	....	....	1850	....	....
MOON																	
6-36	6-2½x4½	19.8	Delco	Tltsn	Wagner	DP	3	114	32x3½	SS	....	1295	....	....	....	....	....
6-66	6-3½x5½	29.4	Delco	Rafld	Delco	DD	3	125	35x4½	SS	†1985	....	1985	2650	2650	....	....
MOORE																	
30-E	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	106	30x3½	....	695	....	....	....	....	....	....
MURRAY																	
	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	....	2800	2800	2800	3600	....	4000	....
NASH																	
671	6-3½x4½	29.4	Delco	Rafld	Bijur	DP	3	125	34x4	SS	....	....	1465	....	....	....	....
681-683	6-3½x5	25.3	Delco	Marvel	Delco	P	3	121	34x4	SS	†1295	1295	....	....	1985	....	....
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafld	Wsths	C	3	128	34x4½	QDR	†2150	†2150	2150	2645	2820	....	....
Twelve	12-2½x4½	39.6	Delco	Rafld	Bijur	C	3	128	34x4½	QDR	†2750	†2750	2750	3245	3420	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	....	....	....
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1050	1050	....	1550	1550	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1495	....	....	....	....
37	6-2½x4½	18.9	Remy	Johnson	Remy	C	3	112	32x4	SS	†1195	1195	....	1595	1695	....	....
OLYMPIAN																	
	4-3½x4½	16.9	Conn	Stmbg	A-Lite	D	3	112	32x3½	....	†1085	1085	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Tltsn	A-Lite	C	3	112	32x4	SS	‡965	985	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Tltsn	A-Lite	C	3	{104 / 106}	31x4	C	835	850	†875	....	1340	....	....
85B6	6-3½x4½	25.3	.....	Tltsn	A-Lite	C	3	116	32x4	....	1195	1195	....	1420	1620	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.7						{136			‡3950	†3950	3950	....	....	5000	....
W-42	6-4 x5½	38.4	Bosch	Zenith	O-M	OM	6	{142	{35x5	SS	....	....	5300	....	6300	6300	....
PACKARD																	
3-35								{136			....	....	4300	....	....	5850	....
3-25	12-3 x5	43.2	Delco	Own	Bijur	DD	3	{128	35x5	QD	....	3950	3950	5300	.....	5500	....
PAIGE																	
6-39	6-3½x5	23.4	Remy	Stmbg	G & D	D	3	117	32x4	SS	1395	1395	....	....	1925	....	....
6-55	6-3½x5½	29.4	Remy	Rafld	Remy	D	3	127	35x4½	SS	....	....	1870	2850	....	3230	....

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DIXIE FLYER																			
L335	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	†995	995	....	....	1375	....	....
DOBLE-DETROIT																			
	2-5 x4	....	Doble	Stmbg	Wagner	..	.	135	35x5	....	....	....	3750	....	....	....	....
DODGE BROTHERS																			
	4-3½x4½	24.0	Own	Stewart	N.E.	D	3	114	{32x3½ 33x4	SS	885	885	....	1350	1350	....	....
DORRIS																			
6-80	6-4 x5	38.4	Bosch	Stmbg	Wsths	DD	3	132	33x5	SS	....	....	....	....	....	....	....
DORT																			
11	4-3½x5	19.6	Conn	Carter	Wsths	C	3	105	30x3½	QD	865	865	**1000	1265	1265	....	....
ELCAR																			
D.F.	4-3½x5	19.6	A.Kent	L-O	Dyneto	DP	3	116	{33x4 32x3½	SS	....	1095	1095	....	{1625 1795	....	....
	6-3½x4½	25.3	A.Kent	Stmbg	Dyneto	P	3	116	33x4	....	....	1295	1295	....	....	....	....
ELGIN																			
A	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	117	33x4	....	†1095	1095	....	....	**1645	....	....
EMPIRE																			
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS	1165	1125	....	....	....	....	....
70-A	6-3½x4½	25.3	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	....	1345	1375	....	....	....	....
73	.....	....	.....	.....	.....	..	.	...	....	....	..	†1360	....	....	....	....	....
FIAT																			
E-17	4-5½x6½	44.1	Bosch	Zenith	Wsths	D	4	140	35x5	QD	....	....	5500	....	....	6500	....
FORD																			
T	4-3½x4	22.5	Own	{Holly Kngstn	.....	D	2	100	30x3½r	C	435	450	....	650	785	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	33x4½	SS	2200	†2250	2250	2850	3050	3200	....
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	....
GRANT																			
G	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	114	32x3½	....	‡1095	1095	....	1575	1595	....	1350
HAL TWELVE																			
21-A	12-2½x5	39.6	Remy	Stmbg	Wsths	DP	3	135	34x4½	SS	3600	3750	3600	....	4500	5000	....
HALLADAY																			
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS	‡1185	1150	....	....	....	....	....
R	6-3½x5	29.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS	1385	1385	....	....	....	....	....
HARROUN																			
	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....	..	895	....	....	....	....	....
HARVARD																			
4-30	4-3 x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	785	†935	....	....	....	....	....
HAYNES																			
38	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1850	....	....	....	....	....
39	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1950	....	1950	2660	....	....	....
44	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2910	....	2910	....	3460	....	....
HOLLIER																			
206	6-3½x4½	25.3	Remy	Stmbg	Splitdf	C	3	116	32x4	SS	....	1485	....	....	....	....	....
188	8-3 x4½	28.8	A.Kent	Stewart	Splitdf	C	3	116	34x4	SS	†1485	1485	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	34x4*	SS	....	†2050	1950	....	2750	3400	....
HUPMOBILE																			
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x4	....	1250	1250	....	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	950	1000	1025	....	....	....	....
JACKSON																			
349	8-3 x3½	28.8	A.Lite	Zenith	A-Lite	DP	3	118	34x4	SS	†1495	1495	1570	....	2195	....	....
JONES																			
26-AB	6-3½x5½	29.4	Remy	Rafid	Wsths	DP	3	125	34x4	SS	†1875	1875	1875	....	2750	....	....
JORDAN																			
J-60	6-3½x5½	29.4	Delco	Stmbg	Bijur	DD	3	127	35x4½	SS	1995	†1995	1995	....	2750	3500	....
KING																			
F	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	....	†2350	2150	....	**2950	....	....
KISSEL																			
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1495	1495	1585	1935	1935	....	1935
Double-6	12-2½x5	39.6	Delco	Stmbg	Own	DD	3	128	34x4½	....	1585	....	2450	....	2850	....	2850
KLINE																			
6-38	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1495	1495	†1495	....	2200	....	....
LEXINGTON																			
6-O	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	....	1385	....	....	1545	....	....
6-R	6-3½x4½	25.3	Conn	Rafid	Wsths	P	3	122	34x4	QD	....	1585	1585	....	1785	....	....
LIBERTY																			
10-B	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1350	1350	....	....	1925	....	....
LOCOMOBILE																			
E-38	6-4½x5	43.3	Berling	B & Ball	Wsths	DD	4	139	37x5	QD	†5150	*5000	5000	....	....	6200	....
E-48	6-4½x5½	48.6	Berling	B & Ball	Wsths	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7200	....
LOZIER																			
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	..:.	1695	....	....	....	....
82	6-3½x6	36.0	Eisman	Rafid	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																			
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD	.	132	35x4½	SS	....	....	1650	....	....	....	....
MADISON								{124											
	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	{120	34x4	SS	†1485	1485	1485	....	....	....	....
PAN-AMERICAN																			
G-5	6-3½x5	23.4	G & D	Rafid	G & D	D	3	120	33x4½	SS	....	1500	....	1650	....	1950	....
PATERSON																			
6-45	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	120	32x4	C	†1295	1265	1295	....	**1795	....	....
PEERLESS																			
56	8-3½x5	33.8	A.Kent	B&Ball	A-Lite	DD	3	125	35x4½	SS	†2340	....	2340	2850	2990	3690	....
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	34x4½	QD	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60.0	Bosch	Own	Wsths	C	4	147½	36x5½	QD	†6400	6400	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	23.4	Delco	Tltsn	Delco	DP	3	120	32x4	SS	†1295	1295	....	....	....	....	....
PREMIER																			
6-C	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	....	†2285	2285	....	....	....	....
PRINCESS																			
36-F	4-3½x4½	22.5	Splitdf	Schebler	Disco	D	3	108	32x3½	....	875	875	875	....	....	....	....
REGAL																			
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD	....	795	....	....	....	....	....
REO																			
	6-3½x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	1550	1550	....	....	....	....
	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	120	34x4	SS	1225	1225	....	....	....	....	....
REVERE																			
	4-4½x6	30.6	Bosch	Stmbg	Bijur	DD	4	130	32x4½	....	....	....	....	....	....	....	....
ROAMER																			
C-6-54	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DP	3	128	32x4	SS	2350	†2250	2475	....	....	....	....
D-4-75	4-4 x6	25.6	Bosch	Stmbg	Bijur	DP	3	128	32x4½	SS	2950	....	3250	....	3950	....	....
ROSS																			
	8-3½x5	33.8	.....	.....	W.Lnrd	DD	3	130	35x4½	SS	‡1850	....	1850	....	....	....	..
SAXON																			
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	935	1045	....	1395	....	....	....
SAYERS																			
SIX-42	6-3½x4½	25.3	Delco	.....	Delco	P	3	118	32x4	....	....	1395	....	..	..	....	....
SCRIPPS-BOOTH																			
D&H	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1285	....	....	....	....	....	....
G	4-3½x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	‡935	....	....	....	....	....	....
Six-39	6-2½x4½	19.0	Remy	Marvel	Remy	C	3,	112	32x4	SS	1195	1195	....	....	....	....	....
SIMPLEX																			
V	6-4½x6½	45.9	Eisman	Nwcmb	Bosch	D	4	143½	37x5r	QD	Chassis	7000	....	....	....	....	....
SINGER																			
	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	139	35x5	QD	4200	†4325	4100	....	5250	5125	....
STANDARD																			
G	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	....	†2450	....	2450	....	3500	4000	....
STANLEY																			
Steamer	2-4 x5	12.8	.....	....	.....	..	.	130	35x4½	SS	....	†2750	2800	....	....	....	....
STEARNS																			
SKL4	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS	†1785	1785	2175	2400	2575	3200	....
SKS	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	125	35x4½	SS	†2575	....	2575	3200	....	3875	....
STEPHENS																			
Salient Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	118	32x4	QD	1585	1585	†1650	..	2085	....	....
STUDEBAKER																			
SH-4-40	4-3½x5	19.6	Remy	B&Ball	Wagner	C	3	112	32x3½	SS	....	895	....	....	....	....	1250
EH-6-50	6-3½x5	29.4	Remy	B&Ball	Wagner	C	3	119	32x4	SS	....	1295	....	..	....	....	....
E-G-6	6-3½x5	36.0	Remy	B&Ball	Wagner	C	3	126	33x4½	....	....	1695	....	....	....	....	....
STUTZ																			
S	4-4½x5	30.6	Bosch	Stmbg	Remy	C	3	{120 130	32x4½	SS	2550	†2650	*2750	....	..	....	....
SUN																			
17	6-3½x5	29.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	..	....	....	....
TEMPLAR																			
A-445	4-3½x5½	18.2	Remy	Zenith	Remy	P	3	118	32x4	SS	2385	2085	....	....	....	....	....
VELIE																			
38	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS	1340	1340	†1340	....	1885	....	..
39	6-3½x5½	29.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS	....	....	1595	....	....	....	....
WESTCOTT																			
S-18	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1890	1940	1940	**2790	**2790	....	..
WHITE																			
16-Valve	4-4½x5½	28.9	.....	Own	L-N	P	4	{124½ 137½	35x5	U	†5000	....	†5000	6050	6050	6200	..
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Tltsn	A-Lite	C	3	121	34x4½	SS	....	....	1625	2275	2325	2425	..
88-8	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	125	34x4½	SS	†2550	....	2100	....	2800	2900	..
WILLYS																			
89-6	6-3½x5½	29.4	Conn	Tltsn	A-Lite	C	3	120	33x4½	SS	†1450	....	1450	....	1330	....	..
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	3150	3150	3200	4150	4400	4400	..
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3850	3850	3850	4850	5100	5100	..
WOOD'S																			
Dual Power	4-2½x4	12.1	A.Kent	Stmbg	Own	Mag	.	124	35x4½	QD	....	....	....	2950	....	....	..

*6-passenger. †4-passenger. ‡3-passenger. t-town car.
**Convertible.

ABBREVIATIONS—"A. Kent" Atwater Kent, "A-Lite" Auto-Lite, "B. & Ball" Ball & Ball," "Conn" Connecticut, "G & D" Gray & Davis, "Eisman" Eisemann, "L-N" Leece-Neville, "N. E." North East, "Nwcmb" Newcomb, "O-M" Owen Magnetic, "Rafid" Rayfield, "Stmbg" Stromberg, "Splitdf" Splitdorf, "Tltsn" Tillottson, "Wsths" Westinghouse, "W. Lnrd" Ward Leonard, "D" Disk, "DD" Dry Disk, "P" Plate, "DP" Dry Plate, "C" Cone, "F" Friction, "G" Gearless, "CU" Control Unit, "Mag" Magnetic, "SS" Straightside, "QD" Quick Detachable, "C" Clincher, "DC" Detachable Clincher, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers, . NOTE—37½x5½ r means that the rear tires are 37x5½ and the front are smaller. Detachable top, 300x, means $300 extra.

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Sweeney Training First Section of Army Mechanics

KANSAS CITY, April 4—H. J. Rahe and E. J. Sweeney, proprietors of the two large automotive training schools in Kansas City, on April 1 received the first contingent of National Army men who are to receive special training in their schools. Those who come to Sweeney's school will probably be cared for in his own building both as to instruction and residence. The Rahe contingent will be given instruction in the Rumely building, North Kansas City, Mo., which has been leased for the purpose. This is a five-story building 130 ft. x 380 ft., where fully 2000 students can be handled if necessary. The Rumely building is situated in North Kansas City near the field where the Rahe school gives outdoor practice on tractors to its students. The Rahe school will provide recreation grounds for the National Army men, with possibly a beach at the Missouri River, a short distance from the Rumely building. Fred E. Roberts, the personal service man with the Rahe school, will have charge of the welfare work for the Y. M. C. A. in connection with the presence of the National Army men in Kansas City.

Ghosts That Are Unemployed

(*Continued from page* 16)

"You can have an influence all the time in the man's home, which is something you can't do by any personal work you may undertake. This is well illustrated by the way your own mind is influenced on national and international topics. You read certain things in the newspapers over and over again for a great many years, and eventually you come to believe those things are true.

"That is the way a great deal of this German propaganda has been put across. Things have been persistently printed about the high character of the German people until, when the war started, a lot of us were inclined to sympathize with them and believe that perhaps England was wrong and the German people were being done a great injustice in many cases. It has taken months and months of actual facts to tear down this belief in our minds.

"You can do the same thing with a man who is going to buy a car. You can keep this unseen influence working on him and working on him and beat down whatever resistance he may have until you can go to him and find him almost ready to buy.

"You should always bear in mind also the influence that has been worked upon him by your letters. If you have sent him eight or ten letters featuring the comfort and riding qualities of the Sennett car, you don't need to go into any exceedingly long discussion of that point. He probably has this well impressed upon him already. The things you say in your letters are nothing but a part of your personal sales talk; they are the things you would like to say and have impressed upon the man. It is just as though you were talking to him all the time over a period of weeks. Every few days you say something else or you repeat with greater emphasis something you have already said before. You keep drumming it and drilling it into his mind and finally it sticks.

"If you could hire a lot of real capable ghosts or spirits to hang around the man all the time and keep telling him what a fine car you have and why he should buy it, it would be worth a lot of money to you. Well, you can do this same thing with your form letters. They stick right behind him all the time and then some day, perhaps, they may shoo him into your place of business, get him down at your desk, make him take hold of a pen and push his arm while he writes his name on the dotted line.

"It's a bet, Miller, that you can't afford to pass up. It's one of the easiest ways I know of increasing sales at a minimum of expense."

An Important Matter

Another important matter is to read the trade papers. Keep posted on what the automobile industry is doing. Read the articles that are written by merchants expert in the handling of accessories. *Take out subscriptions so that each one of your men will receive a trade paper at home.* Possibly they do not think of buying trade papers, or just buy one once in a while. Every salesman is trying to better himself and he will find automobile trade papers a great help.—ALBERT CHAMPION *in an address before the New England jobbers during the Boston show.*

Garagemen Saving Junk

KANSAS CITY, April 4—Men buying broken parts as junk and metals from garagemen are said to be finding a growing tendency among garagemen to save the junk. But the garagemen do not save it for the manufacturer. They are giving it to the customer, who has the part repaired or replaced.

Supply of Chrome Steel Assured by California

WASHINGTON, April 4—There will be no shortage of chrome steel for some time to come, if at any time. This announcement can be made following investigations by industries interested, which reveal:

Eighty thousand tons of chrome has been stored away which has been owned by a huge metallurgical concern, hoping by its storage to increase prices.

Thousands of tons of chrome ore have been found in California mines.

After six months of deliberation and waste of time Washington officials have ordered electrodes supplied to the California mines, which means that the chrome ore mined in this country will be refined and supplied for use.

Some idea of the value of the 80,000 tons of chrome that has been hidden away may be had from the fact that in past years we have only imported 28,000 tons of chrome per year. In other words, a three-year supply of chrome was stored away.

Aldrich Gets the Kissel in New England

BOSTON, April 6—One of the biggest deals in the Boston motor colony was announced to-day when the Kissel Motor Car Co. turned over to William F. Aldrich practically the whole New England territory. Aldrich came here from Providence some time ago and acquired an interest in the New England Velie Co. He still retains it. The Hinchcliffe Motor Car Co. that handled the Kissel and now handles the Jordan gave up the Kissel some time ago. Aldrich has moved his headquarters to the Kissel building, and appointed William B. Taylor sales manager.

Belmont Park Airplane Mail Terminal

WASHINGTON, April 8—The Post Office department has selected Belmont Park, Long Island, as one terminal of the airplane mail route between Washington and New York. The property is a square mile, is flanked by the Long Island Railroad, and is within 25 minutes of the Pennsylvania Station in New York. Construction of hangars will begin at once.

Coming Events

Shows

Red Bank, N. J.	Monmouth County Auto. Dealers' Assn., Armory E. C. Von Kattengell, Mgr.	Apr. 6-13
Reading, Pa.	Reading Automobile Trade Assn	Apr. 8-13
Deadwood, S. D.	City Auditorium	Apr. 15-20
Calumet, Mich.	Upper Peninsular Show, Copper County Automobile Dealers' & Garage Owners' Assn., Coliseum.	Apr. 17-20
Davis, Cal.	Tractor Demonstrations, University of California	Apr. 17-19

Conventions

Detroit, Mich.	World's Salesmanship Congress. Third Annual Session.	Apr. 24-27
Lima, O.	Ohio State Automobile Assn.	May 3-7
Hot Springs, Va.	Convention National Association of Automobile Accessory Jobbers.	June 5-12

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HOW MANY BONDS DID YOU BUY?

MOTOR WORLD

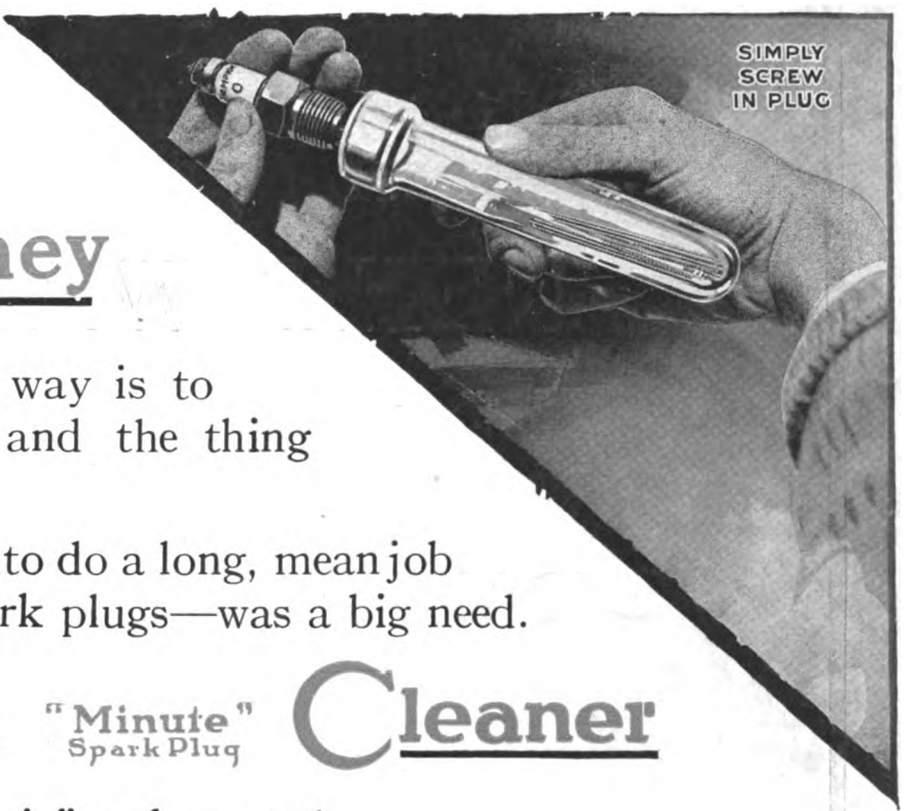
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DEALERS, JOBBERS AND GARAGEMEN

Volume LV
No. 3

New York, April 17, 1918

Ten cents a copy
Two dollars a year



How to Make Money

THE never failing way is to find a big need and the thing that satisfies it.

A quick, clean way to do a long, mean job —the cleaning of spark plugs—was a big need.

Champion "Minute" Spark Plug Cleaner

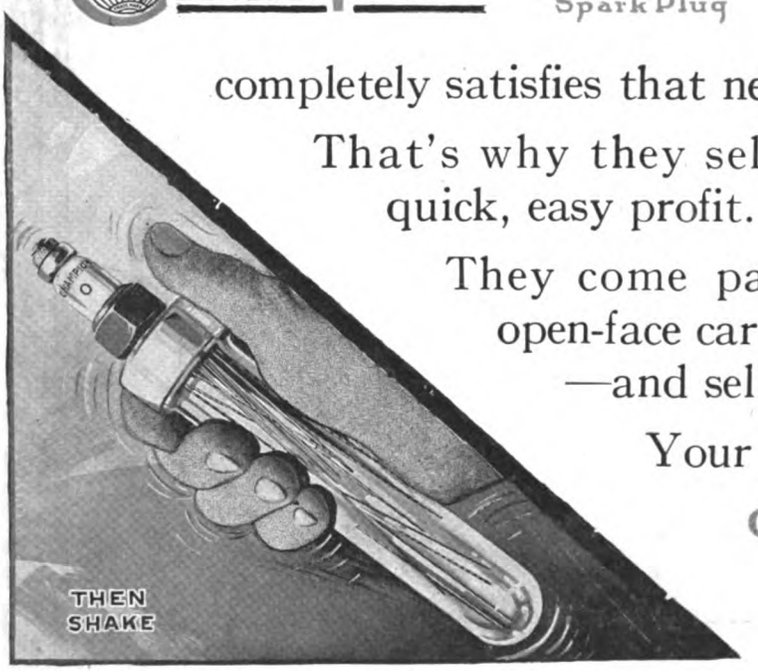
completely satisfies that need.

That's why they sell so fast and yield such a quick, easy profit.

They come packed ten in an easel-back, open-face carton ready for counter display —and sell on sight.

Your jobber will supply you.

Champion Spark Plug Company
Toledo, Ohio



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Advertisers' Index—Next to Last Page

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WATCH

MOTOR WORLD'S SUMMER MERCHANDISING ISSUE

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MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

The Class Journal Co.

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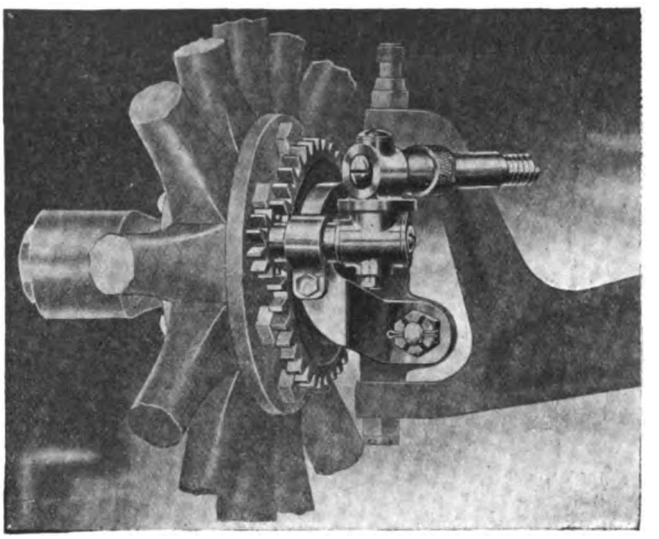
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Easy to Install on Your Ford—The

CORBIN-BROWN SPEEDOMETER

One of the most attractive points about the Corbin-Brown Ford Special speedometer is that anyone can install it quickly and easily to obtain perfect results. The driving mechanism is extremely simple and strong.



The large road wheel gear is properly spaced for the screw holes already in the hub. The gear bracket is fitted positively and accurately into its place by simply moving and tightening a nut. The swivel gear brings the small and road gears into correct alignment.

The swivel drive gear section of the Corbin-Brown is especially strong. The gears are in one piece with the shaft to which the cables are attached, and are hardened and cut to mesh perfectly. A big, sturdy collar holds the gears in position and insures proper meshing under all conditions of roadwork.

The simplicity and strength of the driving mechanism are featured in all the other details of the Corbin-Brown Ford Special speedometer. It is pre-eminently an instrument for hard service and lasting reliability.

Catalog on Request.

Corbin Screw Corporation
AMERICAN HARDWARE CORPORATION Successor
NEW BRITAIN, CONN.
BRANCHES: New York Chicago Philadelphia

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WHACK!



Buy Liberty Bonds

AND HELP KNOCK HIM OFF THE FACE OF THE EARTH

This space contributed in the interest of the THIRD LIBERTY LOAN by the manufacturers of the

Famous CHASE Products

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LV New York, U. S. A., Wednesday, April 17, 1918 No. 8

"Greater Love Hath No Man—"

WE were going to start this by saying: "Have you bought a Liberty Bond?" or "Crush the Kaiser!" or some such thing as that, but then it seemed that those things have been said so many times that maybe they don't mean much to some folks.

They have been said over and over and over again until it seems there isn't much use saying them any more, because the man or woman who hasn't yet got the big idea must be rather hard to move.

And then we thought of that old verse in the Bible that we used to hear years ago about how "Greater love hath no man than this, that he lay down his life——" and that's about all we can remember of it, but it seemed to be something worth thinking about.

The other day we were up in Canada and on the street corners the city had placed benches on the sunny side of the street and on these benches were some pretty tired-looking men in khaki uniforms. Most of them will never again know the joy of sitting on a bench with one foot over the other knee—for the other foot and most of the leg is somewhere else.

Their crutches were leaned up against the benches and their empty pants legs were pinned up behind. You know, it's an odd study, this matter of how a one-legged soldier handles his empty pants legs. Some day you may have a chance to study it in your own home town, and you'll find that they all pin them up the back, not up the front.

The soldier probably figures he looks better that way. He's still trying to make the best of things.

And then we thought of that uncompleted verse about "Greater love hath no man——" and we thought of what these men—who once had two legs—gave for the rest of us, just as our own boys are now offering themselves for those they leave behind. It made it seem that what the rest of us do is such a little thing.

Right now our country is trying to get machinery and ammunition and other things so it won't be necessary for so many men to be sacrificed needlessly, and is asking for the loan of some of our money for ten years so it can buy what it needs. Some day when he reads the "honor roll" from his home town and finds that some of his boyhood playmates won't be back, even when it's over over there, the man who didn't buy a bond—when he could—is going to feel rather cheap.

Some of these people who don't buy bonds don't have to look very far to see office boys, and day workers, and janitors and others buying bonds, and there is so much done by people who don't seem able that it ought to make some folks think twice.

The biggest thing a man can do is give himself. "Greater love hath no man——"

Let's not have it all onesided. Let's make it so that the man who is willing to give his life won't have to throw it away because he didn't have enough backing from the folks at home and——

Have YOU bought any bonds?

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The Ford plant in Long Island City, N. Y., produced this tank for Liberty Loan purposes. It is nothing but a common every-day Ford with the tank shell, of light material, built over it. The idea has been used in several other cities. It gives the loan idea big publicity

Put It Over Big

Do a Job You'll Be Proud Of

Additional news of what dealers are doing on the 3d Liberty Loan will be found on pages 44 and 45

ALL over the country the dealers are making themselves felt as a power in putting over the Third Liberty Loan.

They are doing a job they can look back at and be proud of—which is what all should do.

In some cities the quota has been divided so much to each trade. In other cities the Liberty Loan Committee has not accepted a division on this basis, despite the fact that the trade campaigns on the second loan went over big.

This may cause feeling on the part of some of the tradesmen who would like to have a chance to show what the motor car trade can do. But let's not get sore about it. We can't all be right all the time and there probably are reasons on both sides. So let's all fly at it, regardless of what the basis of organization is and do all we can. The result, not the method, is all that counts at the finish.

In Chicago the trade is working as a trade. In Minneapolis the dealers, who did more than well as a trade on the second loan, are asked to work with the city committee—and are doing it. In Kansas City the dealers are not working as a trade, but are co-operating to the limit with the city committee. And so it goes.

The Kansas City Motor Car Dealers Association is using loan advertising and is putting all its available cash into bonds. Cars are being donated for the use of speakers.

Kansas City and several other towns have taken up the matter of contributions from branch houses. They are asking the factories to let some of the factory contributions come through the branch houses and be credited to the territory from which the branch derives its profit. It is the right idea. The dealers and branches work side by side in business and should do likewise in the loan.

In New York the work is going nicely. The trade expects to put it over big. Indianapolis is contributing cars and men, but is not working alone. However, A. H. Smith, Ford manager, is chairman of the factory speakers committee; E. W. Steinhart, Cadillac, is chairman of city sales; R. V. Law, Hudson, heads the selling of the Hoosier Motor Club; and William Esterly, Firestone, heads a corps that is calling on every motor car man in Marion county.

Every prospect is carded. If he refuses to buy the reason is noted on the card. If it doesn't look like a good reason another call is made by another salesman.

Cars are carrying speakers to 132 speaking points, and the association is buying bonds from its treasury.

In Denver President Fred L. Green of the Denver Automobile Trades Association is chairman of the trade loan committee of 12 members, which is working as one of the teams in the central organization.

Last week Thursday, Mankato, Minn., had a banquet at which a squad of workers from Minneapolis gave instructions to the Mankato people on How to Put Over the Third Liberty Loan.

Last week was told how the cities are pushing the work. They are still at it.

Here are a few suggestions:

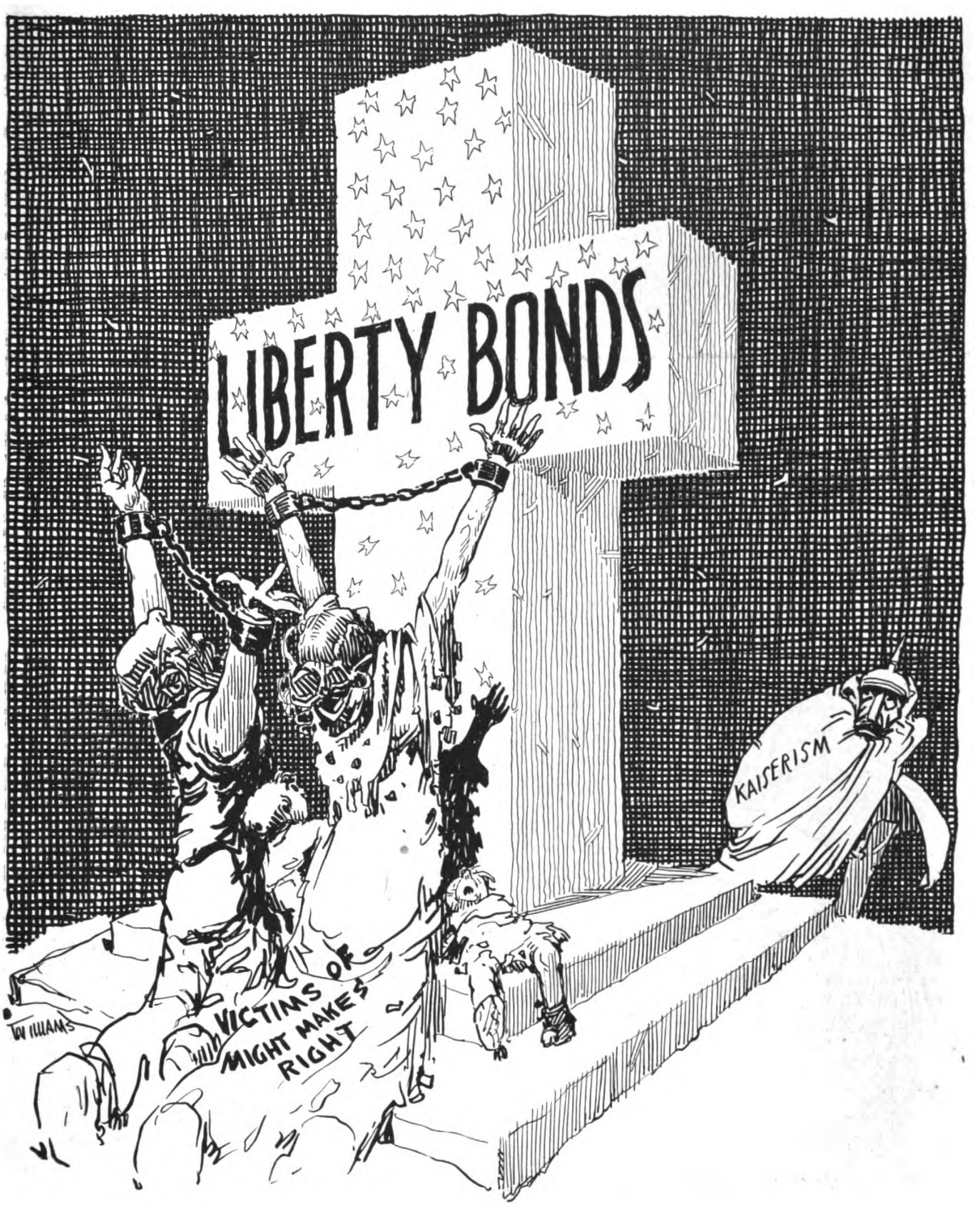
1—Make sure every man thinks seriously about this loan.

2—Let some one who KNOWS each prospect's status estimate whether the prospect has bought what he

(*Continued on page* 45)

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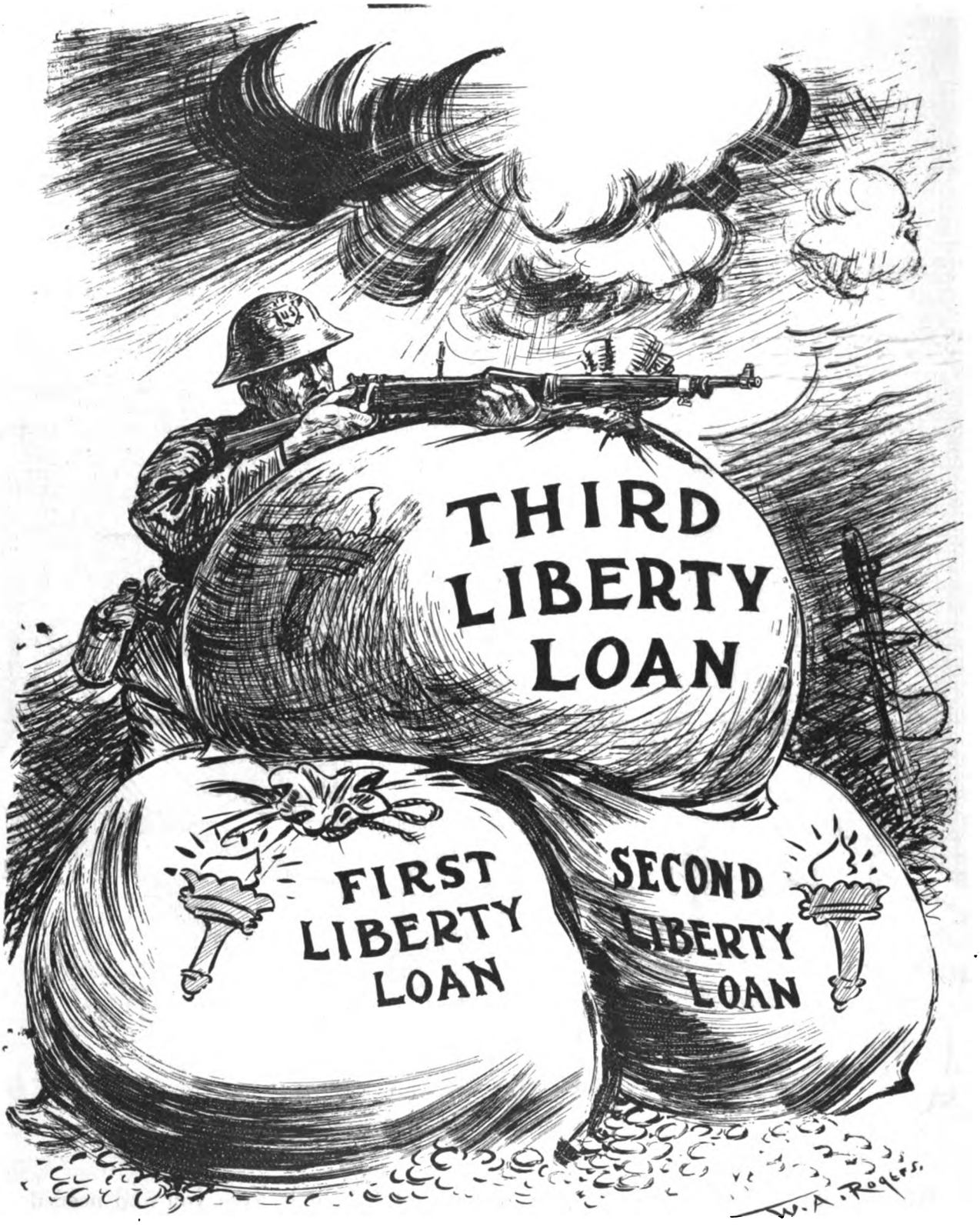
Shall They Pray In Vain?



What would YOU think of a man who wouldn't help if it were you who needed assistance as badly as this? And if they don't get help now YOU may need it later

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Lay Down the Price
or
The Arms May Fall Down



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One year ago President Wilson said: "We will not choose the path of submission." Buy Liberty Bonds and show that you agree with him

A Liberty Loan Story

From the "Quieterion"

Edited by B. G. Koether

And published by the Hyatt Roller Bearing Co., Detroit



Would you have the "In" taken out of American "Independence"? The Kaiser would do it with his sword if he could. That is why you should buy a Liberty Bond

THIS is a special message for you. A message that must come home to you in a bigger way than any message has or ever will. It is a message to every man in this country. Right now you are probably sitting at your desk in your office. Not many hours ago, you said good-by to your wife and to your kiddies; you felt Her arms about your neck and Her warm kiss upon your lips. You kissed the kiddies, gave Her a last hug and hurried for the car.

On your way down, you looked over the morning paper. Perhaps you talked with a neighbor. If you did, it was probably about the war, and you both agreed that it is a horrible thing.

Again, you'll feel Her arms about your neck; and you'll hear the kiddies upstairs getting ready for supper and you'll call up to them a cheery "Hello." You'll eat dinner in the quiet of your home, with your whole family about you. You'll romp with the youngsters, and then when they are off to bed, you'll sit down to your paper or a book or a game of bridge. And while you have been doing all this, leading your quiet, every-day life, other men have been going through Hell.

And through Hell, for you and yours.

Other men have lived these hours in dirty, foul, damp trenches, the stink of which would make you—if suddenly thrown into their lives—vomit the food from your stomach.

And they have been doing this for you and yours.

Other men have left their hangars, have gone up into the sky, out over the enemy's lines, that they might learn something of his position. And these men have given no thought to the fact that that day might count them as missing, machine gun fire from an enemy plane having sent them crashing to earth, now a living, breathing man, and now nothing but seared flesh and broken bones.

And these men have done these things for you and yours.

Other men have charged "over the top," many only to go a few yards, when a breaking shell tears them apart. And other men have climbed down into the enemy's trench, there to fall wounded and dying.

And these men have done these things for you and yours.

To protect that home of yours and the loved ones that are so dear to you.

In the car coming down this morning, you said this war was a horrible thing. And you said it as if it were something with which you had nothing to do—something that could never affect you. Something not half as real to you as that awful nightmare that woke you, cold and trembling.

Don't fool yourself; this is your war. This was your war when the Lusitania was sunk.

It was your war when the first Belgian fell to the ground, murdered. It was your war then, and it's your war now. And you have got to do your bit!

If you would hear the thunder of hostile guns at our sea-ports, if you would see our cities in flames and millions of our soldiers beating back the German flood upon our shores, if you would see our women and our children abused and tortured—the same dear woman and the same dear children that you kissed good-by but a few hours ago—if you would see in this country, your country, a repetition of Rheims, Lille and Louvain, if you would see these things, then just sit supinely back in contentment, feeling secure that the other fellow will take care of you and yours.

Don't fool yourself. This is your war and you've got to do your bit!

It's more than a war for democracy—it's a war for humanity. It's a war to make your home, your wife and your children safe. It's a war to protect them from unbelievable rapacity and unbelievable ferocity.

Perhaps you can't enlist and perhaps you can't train at an officers' camp—but you can do your bit.

This country must have money. The war is costing and will continue to cost, millions of dollars every day.

And this country, your country, wants your help.

You have now, on your desk, a letter to answer, an order to enter. Possibly men are waiting to see you. Before you touch a paper or see a man, go to your bank and do your bit.

Subscribe to a Liberty Loan Bond.

Do it now—right away.

Other matters, never mind how important, are nothing as compared to this. And don't think that the other fellow is going to do it all. Don't think that Wall Street and a few in the big cities are going to do it all. The wealth of the masses is greater than the reserve of the banks.

It's up to you and up to me. If you are an employer of men, arrange so that every man will take at least one Liberty Bond. If you are an office boy, go to the bank and do your bit.

Every Liberty Bond you buy will equip a soldier; buy him a rifle, a bayonet, a scabbard, cartridge belt, one hundred cartridges, gas mask and trench tool.

Every Liberty Bond you buy sends one hundred bullets singing over No Man's Land.

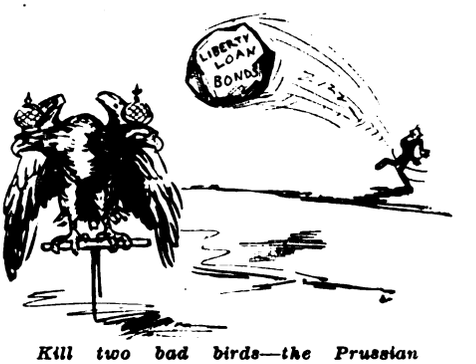
Every Liberty Bond you buy helps to send the Kaiser, and all that he stands for, to everlasting Hell.

Do your bit. Do it to-day.

Buy a Liberty Bond.



Time enough to beat the sword into ploughshares after the Kaiser is beaten into submission. The Third Liberty Loan is an effective weapon against him



Kill two bad birds—the Prussian double eagle—with a Liberty Bond stone

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American Methods Sell Garage Service in Peru

Pancorvo Brothers Have Largest and Best-Equipped Garage in South America—Make All Necessary Parts

EFFICIENCY of the first degree marks the activities of the garage owned by Pancorvo Bros. & Co., Lima, Peru. This garage is the largest and best equipped in that country. It is housed in a commodious building, ample enough to take care of all the business received, and its different sections are so arranged as to make for what is so commonly known in the United States as efficiency. It has two stories, with a frontage and depth each about 150 ft. A noticeable feature is the large elevator for conveying cars to the upper story. The only other known elevator in Peru is in a large German department store. A roomy cellar in the front of the building serves admirably as a depository for gasoline, etc.

The main floor has a rectangular arrangement, along three sides of which, in double rows, are asbestos-lined compartments with accommodations for sixty cars. At present, some 100 cars are garaged, thirty-five of which are undergoing repairs. Quick repairing jobs average from fifteen to twenty per week, while big jobs, which entail complete dismantling of cars for thorough cleaning and general overhauling, painting, varnishing, etc., average from twelve to fifteen monthly.

EFFICIENCY is understanding how to do a thing better than some one else. Enterprise is doing what no one else in your immediate business circle has had the courage to do. The combination of the two qualities is a force which will draw to any business the patronage which appreciates and desires genuine service. In this article is described what those two qualities have done for a Latin-American dealer with grit and foresight.

Build New Bodies

An interesting feature of the work is the complete construction of car bodies from raw materials. Motors, and extra parts not easily or economically manufactured, are purchased, usually from catalog, in order to turn out a "new" car. Facilities for duplicating almost any part of any make of machine—in fact, for practically manufacturing entire cars—are afforded by up-to-date equipment in the way of a machine shop, foundry, nickeling plant, etc. In this garage in a country so backward in manufacturing knowledge and experience, one's interest is held fast while observing the various steps in the manufacturing processes whereby raw materials become finished, often complicated parts of automobiles. In short, employing parts of old cars no longer fit for use, buying other parts from catalog, making others in the shops, combined with reconstruction and artistic, tasteful upholstering of carriage interiors, fine looking cars are turned out, which render most satisfactory service.

About sixty-five men are employed, distributed as follows: Office, three; machine shop, fifteen, three of them all-night workers, all constantly occupied; electricians, two; making fenders, mud guards and lamp frames, two; vulcanizing tires, two; upholstering carriages, three; painters, five; mechanics, nine, three chief mechanics, each having two helpers; one mechanic with two helpers for Fords exclusively; carpenters, one chief with two helpers; one carpenter for exclusive body work; one carpenter for general work, small jobs; two men for charging lamp batteries, working every day in the week; three in the nickeling plant; car-washers and cleaners, six; janitors, two.

All the equipment is of American manufacture.

Among the cars now garaged are the following: Ford, Cole, Locomobile, Hudson, Studebaker, Chalmers, Rambler, Belleville.
Regal, Renault, Panhard-Levassor, Fiat, Bianchi, Lancia, Minerva and Delaunay-

There are about 500 automobiles in Lima, a fair proportion of which are Renault limousines, of low horsepower, but giving excellent service and of smart appearance. A number of Fords and Hudsons are in evidence. Cadillac cars have recently appeared, and an opening exhibition of Marmon cars, the first imported into Peru, has just been given. There are a few other cars of foreign make, none of them, however, less than perhaps 3 years of age.

Comparatively few motor trucks, only about fifteen, have as yet traversed Lima's streets. Grace & Co. use two 5-ton trucks. Two are used on the Cerro de Pasco Railway, between Talarnioc and Tarma, for carrying passengers. Rocca & Miller, a large importing house of Callao, uses a Chalmers truck. At least one is employed by the Peruvian army. Some of the lightweight variety are used in Lima for transporting passengers. Their wider use is made difficult because of the condition of the city's pavements, which are not strong enough to withstand the wear and tear of such vehicles. It seems that a more extended and vigorous campaign for better street paving will have to be carried out before general motor truck traffic will be in evidence. The Alcalde of Lima in his last annual report discussed at length the need for street paving in Lima.

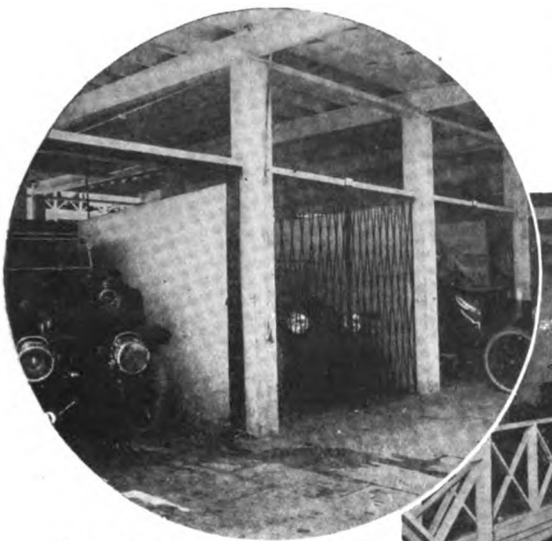
Improving Peruvian Highways

The last session of the National Congress passed the Road Law, which makes it possible for the National Government of Peru to co-operate with the departmental and municipal governments in assisting property holders to improve the country highways of Peru. Since the passage of this law, the public press of Lima has devoted a great deal of intelligent effort to a campaign for the improvement of old roads and construction of new highways throughout the country. As a result, several new roads have been already opened, notably that connecting the city of Tarma with the railway at

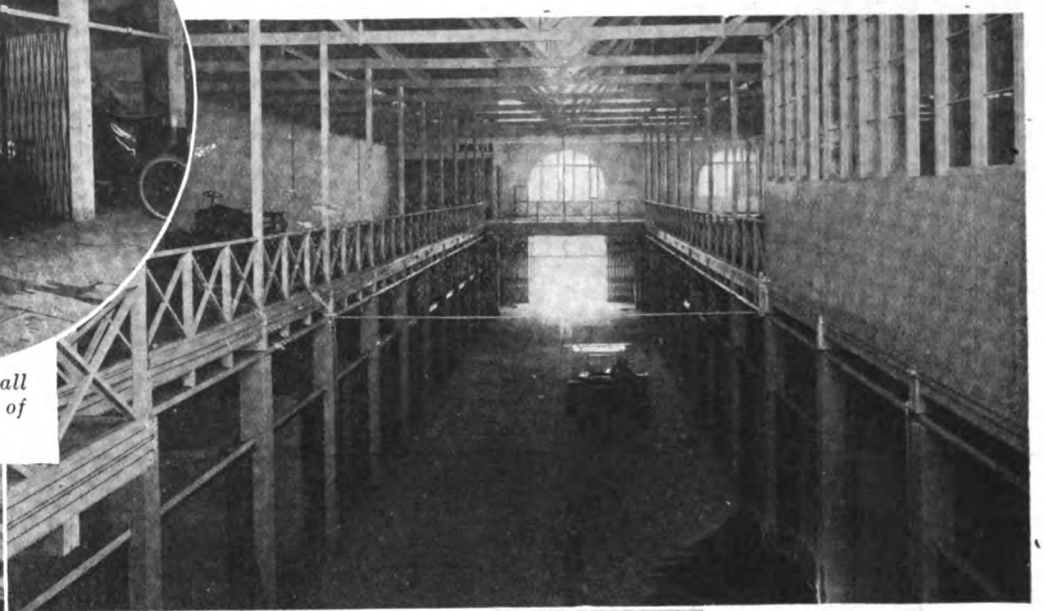
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Views of Largest Garage in Peru

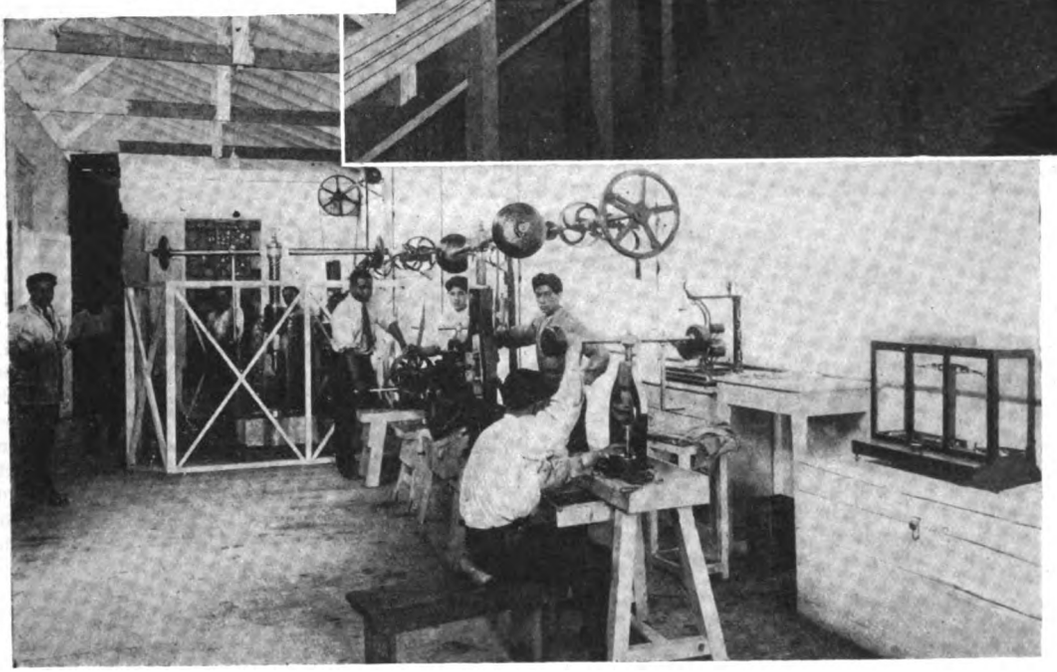
It has an an up-to-date machine shop equipped with the latest American machinery and accommodation for 100 cars



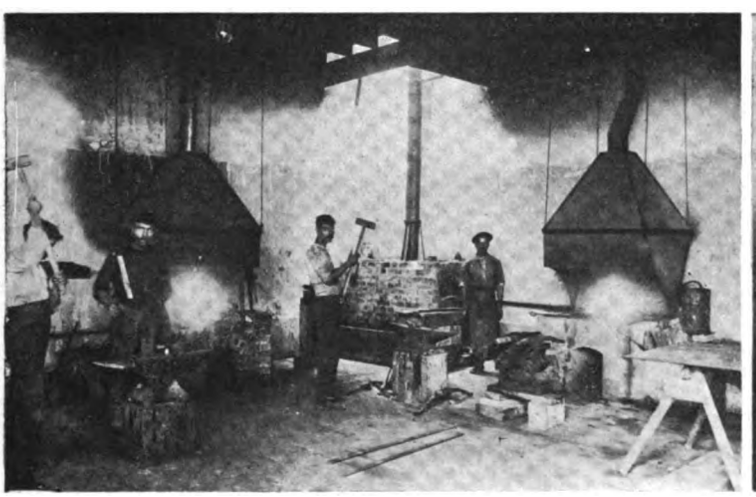
Each car has its own stall and is locked in by means of folding gates

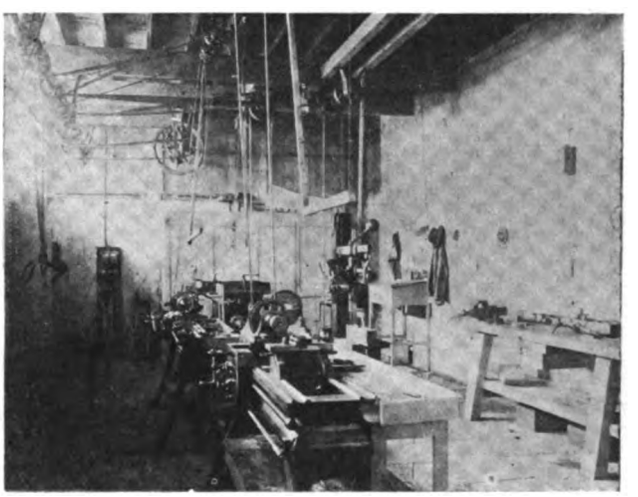


Above—Separate rooms are provided for storage of automobiles in the Pancorvo garage. Note the overhead method of lighting



Left—Cutting room of Pancorvo Bros. & Co. garage, showing up-to-date machinery used by the progressive South American company





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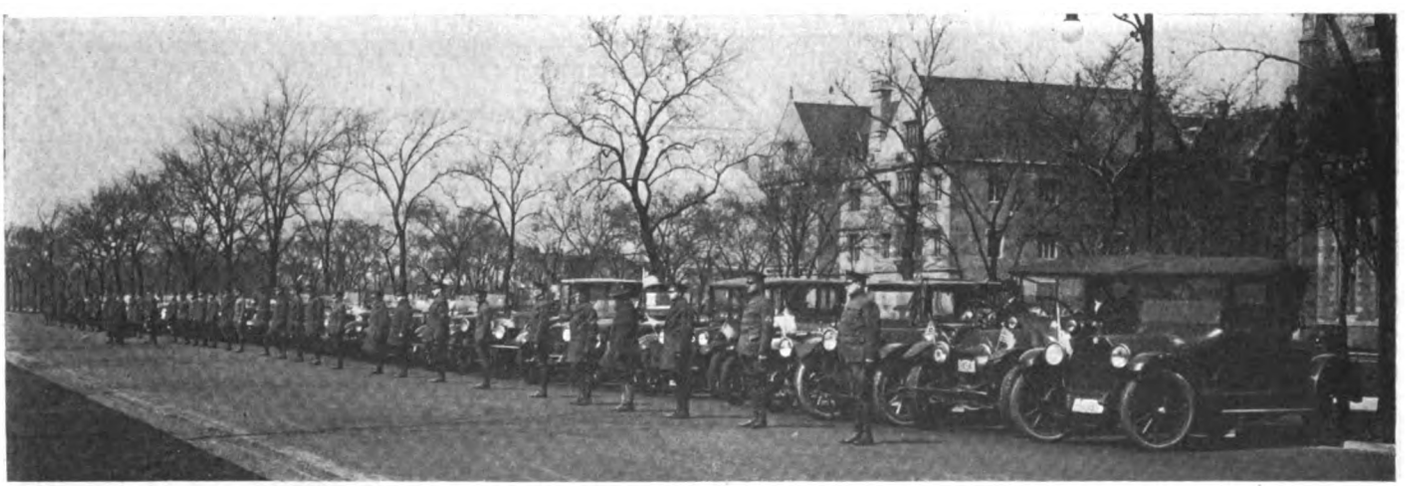


Exterior of Pancorvo garage, giving an idea of its size. This garage has a special entrance and exit. Cars going to the second floor are taken up by means of an elevator

Talarnioc. Several other projects are under investigation by the Highway Division of the Department of Fomento. Property holders along the public highways are co-operating with considerable enthusiasm with the Department of Fomento. The entire movement is gaining headway with increased enthusiasm for motoring and more numerous sales of cars.

Peru has a population variously estimated at from 2,500,000 to 3,000,000. Though the country has been subjected to many wars and controversies over its boundary lines, much progress has been made by its inhabitants. There are about 676,638 sq. miles of land, of which the strip along the Pacific Coast has been rendered fertile by irrigation. Agriculture is the chief source of wealth despite the seeming incompatibility with the arid character of the country and the peculiar condition of its civilization. Sugar is the most important product, with cotton next. The successful development of coffee has been hindered on account of the difficulty of transportation. Much has been done with mining and one of the most important branches of Lima's industrial activities is the smelting works.

Chicago's Cars Get Behind the Loan



Chicago has a Motor Reserve which, in addition to its regular duties, is carrying Liberty Loan speakers. It is here shown lined up for the start

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Toledo's Used Car Appraisal Plan

No. X 45 **APPRAISERS USED CAR SURVEY** Date _____ 19__

Make of Car Sennett Year 1915 Owner John Doe

Motor No. 4876 Style Touring Address 16 Ohio St.

WHEELS ✓	DIFFERENTIAL ✓	GASOLINE ✓
Bearings ✓	TRANSMISSION ✓	Tank ✓
Alignment ✓	Shifting Lever ✓	Line ✓
BRAKES ✓	Gears ✓	Vacuum ✓
Service ✓	Propeller Shaft ✓	BODY Needs Paint
Emergency ✓	Universals ✓	Doors ✓ Seats ✓
TIRES Bad (1)	CLUTCH ✓	Starting Crank ✓
Front ✓	MOTOR Needs overhauling	WINDSHIELD ✓
Rear ✓	Compression Weak	TOOLS ✓
Extra ✓	Cyl. 4 Valves ✓	FENDERS ✓
SPRINGS ✓	Bearings Large T. Gears ✓	HOOD ✓
Front ✓	Pump ✓ Plugs ✓	TOP ✓ Down ✓
Rear ✓	Carburetor ✓	Cover ✓ Carpet ✓
STEERING GEAR ✓	Magneto None Generator ✓	EXTRAS 1 Good Tire
Wheel ✓	Oiling System ✓	
Post ✓	Ignition ✓	
Connections ✓	Wiring Engine ✓	
Steering Knuckles ✓	WIRING lights ✓	PARTS MISSING
AXLES ✓	Head ✓ Side ✓ Tail ✓	
Front ✓	STARTER ✓	
Rear ✓	Battery ✓	

Remarks: Overhaul $50 Paint 25. } $75.00

TOLEDO AUTOMOBILE DEALERS' ASS'N.

Per Mechanic

Form 1.

1

THE Toledo Automobile Dealers Association is meeting with success in a used-car appraisal plan it recently adopted. Prospect's car is appraised at an appraisal station, prospect is given a certificate of value good for ten days. The forms show how the work is handled. The appraisal plan is that worked out by Motor World last summer, and is based upon a percentage of value shrinkage for each year of use. These are the various forms that are used.

1—*MECHANIC'S CAR CHECK.—The mechanic will so far as possible determine the condition of the car to be traded by checking each item as appears on this card*

2

No. X 45 Date _____ 19__

This is to certify that John Doe Address 16 Ohio St. City Toledo State Ohio

has presented Sennet Car 1915 No. 4876 for appraisal. In its present condition for a period not to exceed ten days we value this car at ($304) ~~X~~ THREE HUNDRED FOUR ~~X~~ Dollars

General condition	Needs paint
Motor	" overhaul
Rear Axle	O.K.
Transmission	O.K.
Tires	1 poor
Top	O.K.
Extras	1 good tire

Toledo Automobile Dealers' Ass'n.

Per _____ Appraiser

Form 2.

3

No. X 45 Date _____ 19__

This is to certify that John Doe, Address 16 Ohio St., City Toledo, State Ohio

as presented Sennet Car 1915 No. 4876 appraisal. In its present condition for a period not to exceed ten days we value this at ($304)

neral condition	Needs Paint
'or	" overhaul
r Axle	O.K.
umission	O.K.
	1 poor
	O.K.
	1 good tire

Dollars

Toledo Automobile Dealers' Ass'n.

Per _____ Appraiser

2—*CUSTOMER'S APPRAISAL SLIP.—This slip will be given to the customer, showing what his car is appraised for, general condition of motor, rear axle, transmission, tires, top, and any other extras he may have at time of appraisal.* 3—*Duplicate of customer's appraisal slip for the association files*

4

DEALERS REPORT

No. X 45 (Same as Appraisal) Date _____ 19__

This is to certify that we have taken in trade Sennet (Name of Car)

Car No. 4876 (Motor No.) and allowed the owner

John Doe (Name of Owner) $ 304 (Allowance Price)

Please fill in the above and mail to V. G. KIBBY, Sec'y., 312 Eighteenth Street, Toledo, Ohio. Also inclose check to the amount of $3.00 or put X in square.

Charge $3.00

Firm Name _____

By _____

Form 3.

4—*DEALER'S REPORT OF TRADE IN.—As soon as a dealer takes an appraised car in trade, he fills in the above card and mails it to the association*

5

DEALERS REPORT USED CAR SALE

Name of Car Sennet Car No. 4876

Model _____ Year 1915 Style Touring Cyl. 4

We sold this car for (Cash) (Time) $ 500

We spent for necessary repairs $ 75

Appraisal Price $ 304 Balance $ 425

Firm Name _____

By _____

Form 4.

5—*DEALER'S REPORT OF USED CAR SALE.—The dealer fills in the above card, and mails it to the association as soon as he sells a used car*

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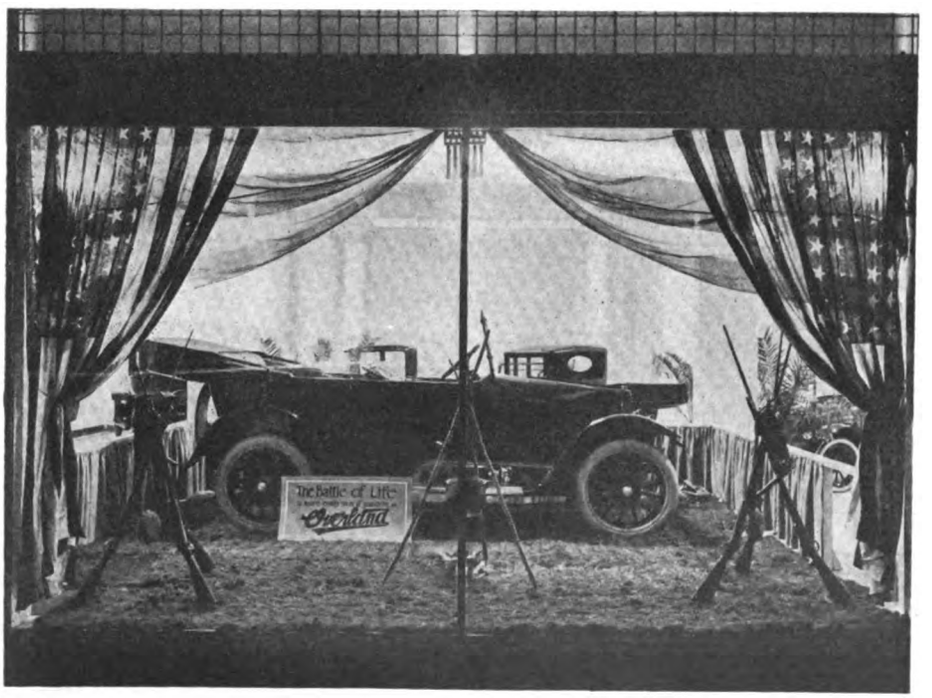


Six Good Windows

THE window at the left is one of hundreds that have been set up for dealers by the Champion Spark Plug Co., Toledo, which has a dozen or more cars covering the country in this window work. The display is made mostly from materials that any dealer may readily secure from the factory in case one of the window trimming cars doesn't happen to come his way as soon as he would like it. The Champion company states that these displays have helped dealers move goods, stimulating sales in a marked manner

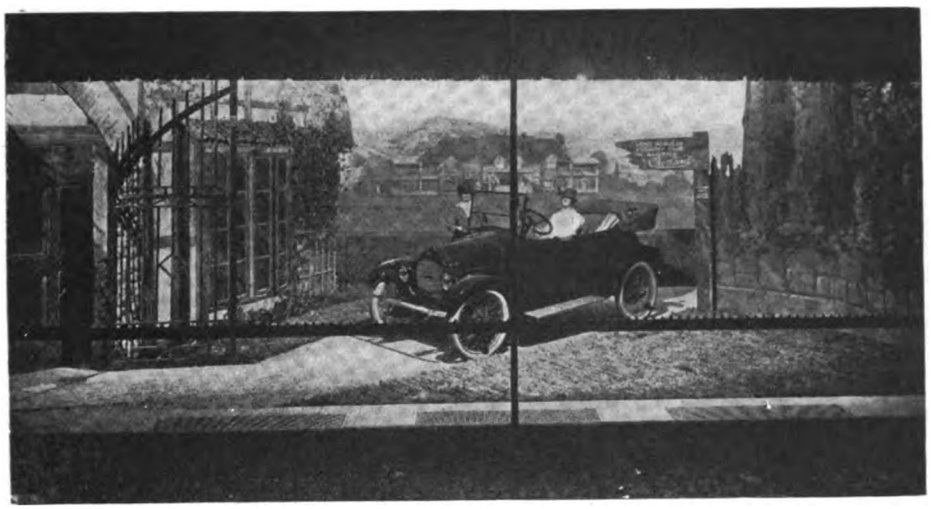
E. H. Smith and T. E. Herlihy of the Maxwell Motor Co., Detroit, did this window for the Cunningham Automobile Co., which handles the Maxwell in that city. It is a striking display and required considerable effort and materials—but it is something any dealer could easily imitate. At the present time, with snow on the ground, what could be better than a Maxwell sedan coming down a snowy road and the sign saying: "When snows blow and the days are cold save time, make speed, be comfortable and gain health in a Maxwell sedan. Come in and sit in it"





WAR displays always catch the eye in war-time—and the Overland man in Los Angeles said a lot when he said that "the battle of life is more easily won if you drive an Overland." That is a thought that can be used in a big way by many dealers. To-day many people have classed the car as a non-essential and they say that, even if a man does use his car for business purposes, he uses it a great deal for luxury purposes. But this sign in the window well expresses the true situation. The use of cars for fresh air purposes helps one win the "battle of life." Cash in on that thought. Use it in your sales talk, for unless we can all win the battle of life our country can't win our war

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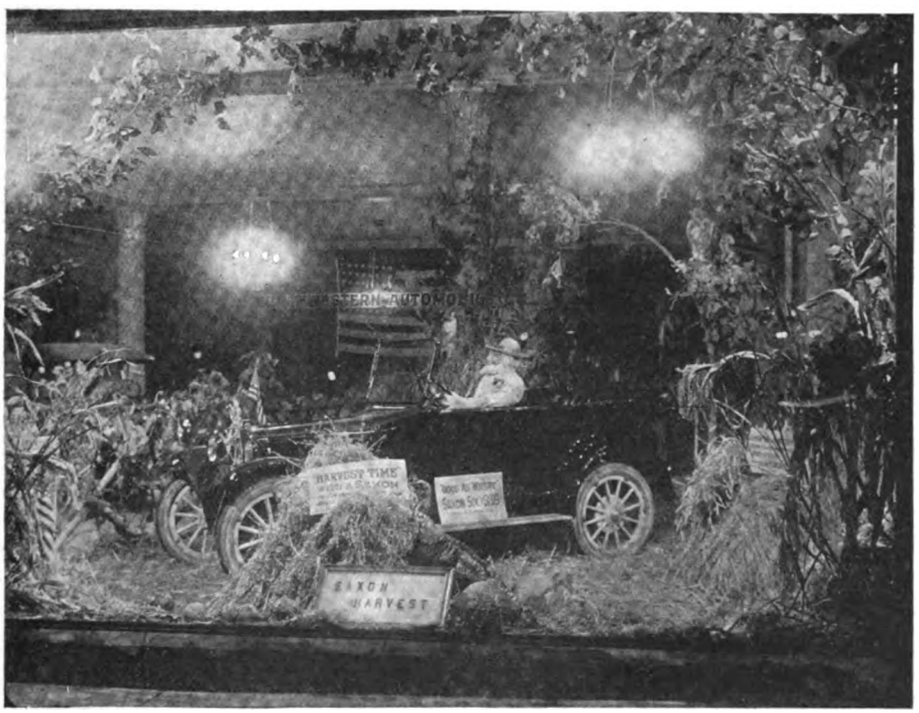


Scenic Effects Count

SCENERY like this isn't easy to get, but the effect is wonderful, isn't it? Window men say there is nothing harder to display than a car, because it is just a car and that's all. But see what was done in this case in the New York Overland establishment. There's a club roadster, a clubhouse and a couple of clubwomen. On the sign post in small letters it says: "Gilman hats across the road," and they are—on the other side of Broadway in a hat store

MC COY used to be with Chanslor & Lyon. Now he is operating for himself. This window shows what his trimmer did with Advance Felt products. Dealers should bear in mind that cartons and boxes are one of the secrets of good window display. They can be made into all sorts of shapes and blocks. Note how the window trimmers in good stores use them. Look at any department store window where small goods are shown. Look at any hardware window—and while you're looking take another look at this McCoy window display. Not bad, is it?





"GOOD as the wheat!" When you've said that in Minnesota you don't need to say any more, so the Northwestern Automobile Co., Minneapolis, used it on a card when it staged a Harvest Window in its salesroom at 1500 Harmon Place, the new motor row. It cost $14 for material and occupies two corner windows. The idea was worked out by L. H. Cary of the sales department. That is not Cary in the car; that is the happy way a wheat grower looks after Cary has convinced him that the Saxon is more essential than the price of 300 or 400 bushels of wheat

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The Last of a Series of Six Stories

The Invisible Ink

BY RAY W. SHERMAN

REILLY pulled up in front of the place of Miller, his dealer in Merrylton, just as the latter was having the carpenter put the finishing touches on a runway display cabinet in which Miller proposed to show a lot of accessories to farmers the coming season.

"Well, Miller, that looks fine," said Reilly with enthusiasm. "That's a regular sure-enough layout. It ought to sell you a lot of goods this year."

"It does look fine, doesn't it?" said the carpenter. He stood back and admired his own work.

"I like it," said Miller. "The only thing I can't understand is why I didn't do it long ago. And now I'm going to get a lot of these things out of the stockroom that I bought because jobbers' salesmen told me I could sell them and put 'em in here and see how long it takes for them to move."

"It won't take long," said Reilly.

Then the two walked into Miller's office.

"What I came down to see you about," began Reilly, "is some of those cars that you have scheduled to come through this week. When are you going to take them? I have a shipment coming through from the factory and some of it is here now. Most of them are being driven over the road. I don't think it's possible to have very many of them shipped by freight because we can't get the cars."

"Well," said Miller, "I have been pretty busy. I haven't been able to get down to Callawassa and I don't know whether I will be able to drive any of them away or not. Don't you think it would be possible for you to get a box car and send me one or two that way?"

"No, I don't think so," said Reilly, "it isn't a safe proposition to figure on. If you want the cars, I'm afraid you will have to come down and drive them away and pay for them too."

"Well," parried Miller, "as I said before, I've been pretty busy. You see, I've fixed all these windows you told me about and got this accessory display case fixed up. Then there are all those form letters you made me send out and I've had to go over to the newspaper office and spend money for advertising and—"

"Yes, and all the money you spent for windows and display cabinets, newspaper advertising, form letters and everything else will be money thrown away if you don't come down to Callawassa and get some of those cars and get 'em up here in stock. What's the use of your trying to sell stuff when you haven't anything to sell? You are merely running your legs off for no results.

"The one big essential this year for all the dealers in this territory is to get cars and they're foolish to try to figure on getting them by freight because it's practically an impossibility. I don't see how you're going to be able to do it. I'm figuring on driving a lot of cars from the factory down here and you fellows will have to come in and take 'em away if you want 'em.

"This is just one other occasion in which this action thing comes into the situation. You can sit around here all summer and complain to your customers that you can't get cars. You can lament to me and to the railroads the fact that you can't get box cars, but what good is that going to do you when it comes to putting money in the bank?

"This sales campaign that you have started is a fine thing and you are getting your place of business fixed up in nice shape, but unless you have something to sell all of your effort is gone for nothing. The dealers who have got cars in stock now are going to make some money as soon as the season opens up and people begin to demand them, and the dealers who haven't got any in stock are going to lose some money. Now I don't want you to be one of those that are going to lose money so I want you to come down to Callawassa within the next two or three days and get some of these cars.

"There have been other summer seasons before when it was impossible for the dealers to get cars; sometimes it was because the demand was greater than the supply. This year it is a little of both. There is likely to be a shortage of cars and we certainly know there is going to be a shortage of freight cars, so the dealer who expects to make any money has got to do some pretty tall figuring on getting stuff to sell.

"Right now, I can give you two or three cars and a truck and several trailers, and at the same time you are taking them up, I think it would be a good idea if you went down to Ben Doyno's and picked up enough accessory stock to make a good showing in this fine display case which you have built. See your banker and raise some money.

"Advertising without any distribution has caused many an otherwise good sales campaign to fall down. Sometimes a man who has such a campaign in charge does a lot of advertising, gets the public all excited, and they go into stores and ask for goods and then when they get there the goods haven't arrived yet. Advertising has been ahead of the distribution. The result is that people, having once reached the buying point, are very hard to get back there again. You will find that out for yourself before this summer is over if you don't get those cars.

"Furthermore, the chances are if you should take your entire twenty cars right now, a lot of the dealers around the territory would be only too glad to come up here and take any of them off your hands that you couldn't sell, because some of them aren't going to have all they want,

(*Continued on page* 52)

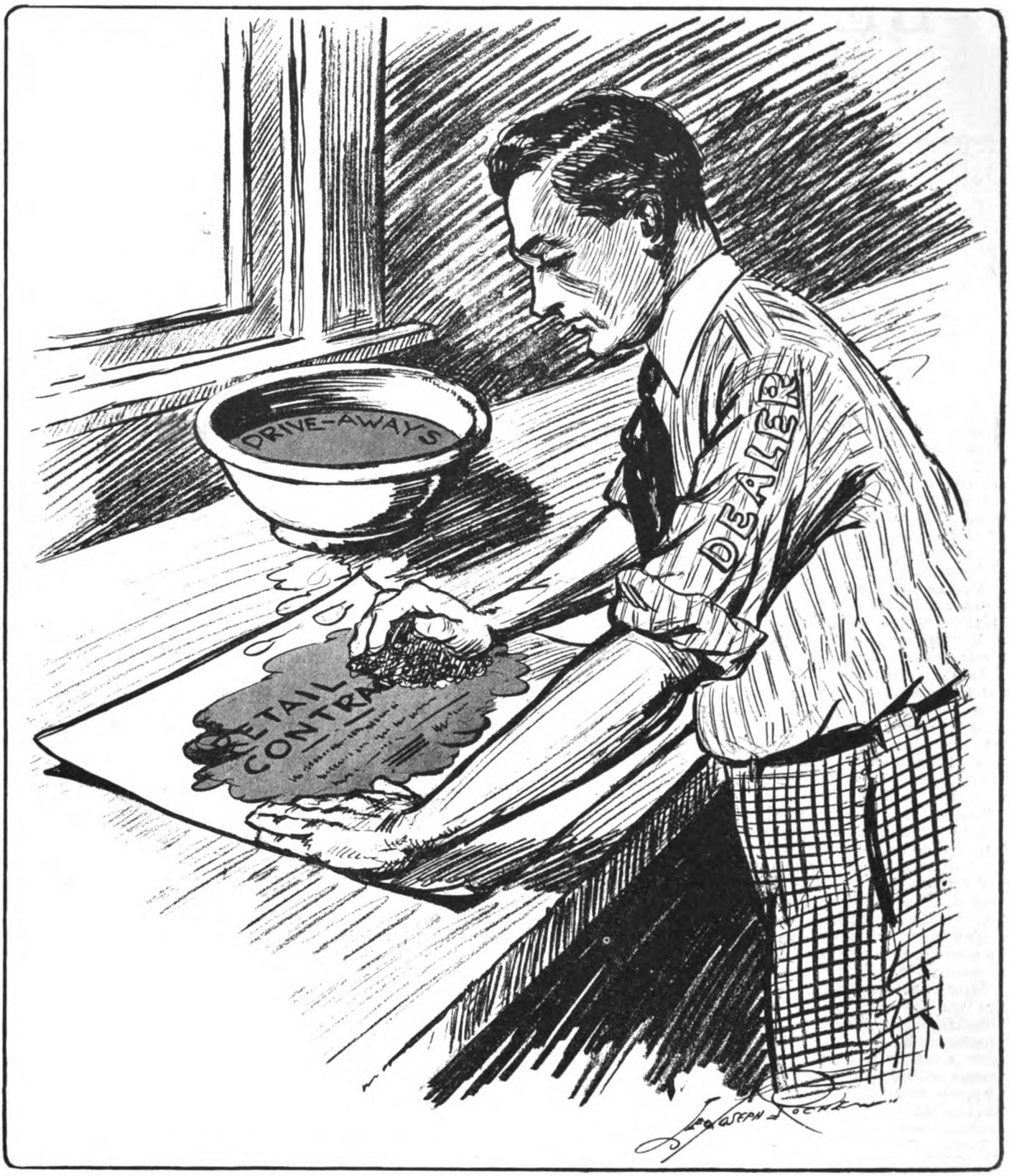
OTHERS IN THE SERIES

1—The Man Who Was a Slacker
2—The Horse Without a Rider
3—The Locked Door
4—The Street Without a Name
5—Ghosts That Are Unemployed

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The Magic Acid



The contract these days is written in invisible ink. There is nothing on it unless the magic acid of the drive-away is used to bring out the real value on the paper. Without cars to deliver the contract is only blank paper

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A Department of

BETTER MECHANICS

No. 64

When Not to Grind Valves

First Try Cleaning the Stems and Guides

By David W. Onan

IN the early days of the motor cars—the days when the cylinder sizes were ranging from 4½ in. to 5 in. (where they now range from 3 in. to 3½ in.), and motors were not called upon to carry the range of speed (from nothing to any speed that might be required)—valve grinding, cylinder reboring and fitting of piston rings was almost an unknown problem.

We had little difficulty in giving the average motorist satisfaction if he was able to drive his car under a load at 10 to 12 miles an hour (and up) and make the grades on intermediate or first speed.

As the cylinder sizes have changed, and in a great many cases dropped down to a 3-in., 3¼-in. and 4-in. bore, with strokes ranging at different points, with the development of carbureters to take care of the larger range, we had gradually worked into a more difficult problem.

This problem was that the motorist wanted a motor to drive anywhere from 2 to 3 miles an hour on high gear up to the maximum speed of the engine, without the slipping of the clutch or the missing of a single cylinder; of course this was to be expected. He paid for a high class automobile, and it should function as perfectly as it did the day he received it.

After spending several years on ignition and the working condition of motors, the writer, through a peculiar circumstance, became keenly interested in valve grinding and its result. For almost 3 years I was called upon to diagnose the trouble in the working condition of engines, not only ignition and carburetion but other working conditions. It happened that during this experience one of the most interesting problems that were encountered were the valves in the two-cylinder, opposed, 4 x 4½ engines, and it was this motor that created the keen interest and afterwards resulted in a very valuable amount of experience and experiments in connection with valves. This also happened at about the time that the oxygen process of removing carbon from cylinders came into vogue.

Work Not Always Necessary

Valve grinding is probably one of the first things that the average automobile mechanic learns after entering the automobile industry, yet I believe that in the minds of a great many, valve grinding is considered and practiced in a great many instances where it is absolutely unnecessary.

When cars were going through this shop at a rate from eight to ten a day, the writer made it a point to see every set of valves removed from any make or model of engine and make a memorandum of the number of motors going through and the condition in which valves were found.

At one time, out of some fifty engines (the larger percentage running four cylinders), the average number of valves to be ground in out of eight valves to the average motor would be two valves.

The balance of them required nothing more than a thorough cleaning, and while the average repairman makes an effort at cleaning the valve seat and grinding it, the smallest amount of difficulty was encountered at this point.

The almost convincing result of this experience is that valves do not carbonize on the seat from any fault of the seat itself or due to carbon formation of foreign materials or other things that might happen to the seat.

Watching these valves closely and experimenting at different times has proven that by removing the valves, thoroughly cleaning the stems and guides, replacing them in the cylinders almost the same results were accomplished as though a great deal of time had been spent in reseating the valves by the ordinary grinding methods.

In all cases where valves had been originally properly fitted they were almost invariably found to be perfect after the carbon deposits had been removed from the valve stem and removed from the guide; when such carbon as might have accumulated on the seat, due to the valve stem and guide holding them from seating properly was removed, the valve functioned absolutely as it did at the time it was installed originally (Fig. 1).

A great many of these motors were sent in for adjustment in the way of ignition and carbureter. They stated in a great many cases the valves had just been ground and the carbon removed, yet the carbureter required some adjustment, and in making a careful test one could immediately discover after allowing the engine to reach an excessive temperature, giving the valves and valve stems a proper chance to expand, that certain cylinders would become lacking both in power and often missing fire and failing to work completely at closed throttle position (Fig. 2).

At times, in testing out these cars before making a decision as to what should be done to them, they would go out and fire properly up to say 18 miles an hour, and continue to do this indefinitely.

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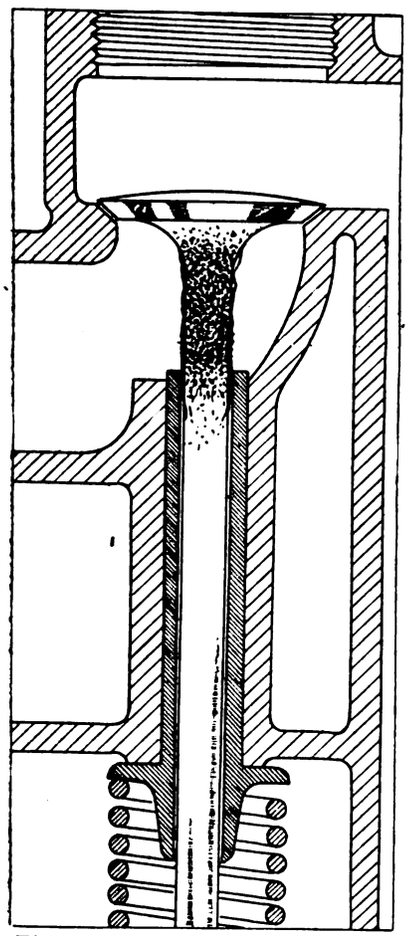


Fig. 1—Heavy deposits of carbon collect on the stem of the exhaust valves, thus preventing the valve from operating freely

Yet immediately on trying to drive the car at a rate of 25 miles an hour, missing would begin to occur and the motor would not function as it should.

The temperature would rise, having an effect on the valve stems and causing the valves to remain further away from the seat at this temperature than they did at slower speeds or lower temperature. This, in almost all cases, was immediately overcome by the cleaning of the valve stems, regardless of the amount of grinding done on the valve seat, and it was found that there was almost a negative amount of grinding necessary to reseat the valve itself when the stem and guide were properly cleaned.

It was noticed that almost a definite conclusion could be drawn as to the working conditions of the engine, due to valve effects, by noticing the condition of the valve stems as they were removed from a car, before making any alterations or cleaning the valve stems, seats or guides.

In removing valves from their places in a motor, it will be always noticed that below the valve head and at the top of the guide running surface of the stem there is always a prominent collection of carbon on the exhaust valve stem.

If you will take an ordinary file or a piece of a hack saw blade and attempt to scrape this, or sandpaper or emery paper, you will find that immediately after making a very thorough cleaning of this with these tools that the valve stem will remain a gun metal color; there is every reason for believing that this color is due to the heated condition under which it has been operated.

If you take a piece of a broken emery wheel and roll the valve stem on it you will immediately find chips of carbon flying from it as you would from scraping any hard surface with a scaly formation.

A valve stem is not clean until it is restored to its original color, just as though it had been machined. With a microscope of suitable strength you will be more than surprised to see some of the valve stems after they have been considered thoroughly cleaned and ready for reinstalling.

Carbon deposits at this point should always be removed completely; the stems should be reamed with a reamer or washed out with kerosene and a steel bristle gun cleaner or other like instrument. This will insure the greatest amount of service from a motor without the regrinding of the valves.

A valve properly machined to fit should not have to be ground over from 1 to 2 minutes to give the proper seat to remain in constant service for an indefinite length of time providing the valve stem and guide are properly cleaned and fitted.

This information pertains almost entirely to the exhaust valves, and little of this experience occurs on the intake. The valve seems to be best seated after it has been in constant use in traveling up and down.

It is always advisable after cleaning valves to allow the tappets to run loose for a period of several days before adjusting them to the minimum amount of space.

We notice that the average user, after once having the valves thoroughly cleaned in this manner—and the other conditions about the motor properly adjusted—is able to run anywhere from 4000 to 5000 miles without the cleaning of a spark plug or a single adjustment. The next time he had any trouble with his motor—providing he had made a run of this length (which we have found a great many of them have done)—he immediately drove in and wanted to know if the motor could not be cleaned up and adjusted the same as it was the last time.

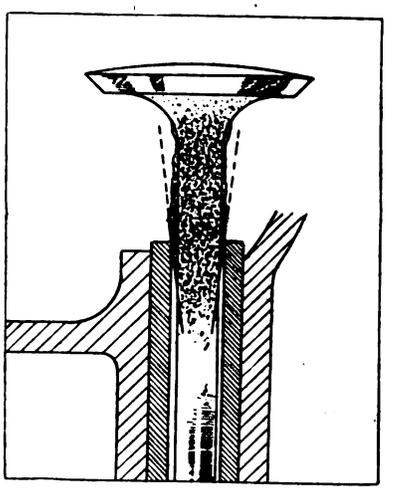


Fig. 2—If carbon is not removed from valve stems it eventually gives a taper effect which prevents the valve from seating properly

The total expense of valve and cylinder cleaning is not great. The largest six-cylinder motors during this period were cleaned (even in their worst condition), all valves removed and thoroughly cleaned, at a fair charge—not in excess of $12; four-cylinder motors, ranging from $6 to $8; yet there was no time lost in adjusting either before taking them down nor did any attention have to be given them other than to start the engine after they had been properly put back together. The adjustment of the carbureter was very readily made, and by properly adjusting the spark plugs, etc., before installing them in the motor, invariably the minimum amount of time was necessary to turn the engine out in absolute working condition.

The cylinder and valve cleaning is something that does not require a first class mechanic; an ordinary helper in the shop with the proper instructions can do this work as accurately and efficiently as the best mechanic.

There is no machine work about it; it is merely a matter of disassembling and assembling, and the results accomplished in this experiment and covering the period heretofore mentioned kept up a keen interest among all of the workmen (the better mechanics as well as the helpers), as valves always furnish problems for thought and interest.

As poppet valves still seem to predominate, and this experience covers over 3 years of constant watching, there is every reason to believe that there are still some things to be learned about valves and carbon deposits in a motor.

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Repairshop Shortcuts

From Motor World Mechanics

NO. 1628—REAMER FOR VALVE SEATS

It was found that the valve seats of an engine had been ground or reamed so low that a ridge was left on the outer edge. A reamer large enough to cut this ridge would not go in the port, so a special reamer was made, consisting of a piece of cold rolled steel squared on one end and threaded on the other, the size just fitting the valve stem guide. This is screwed into a larger piece of cold rolled stock which has a hole bored and tapped to receive the smaller rod. A hard tool-steel cutter ground to the proper shape is held between the two.—W. F. Craig, Franklin, Pa.

NO. 1629—POLISHING HEAD

A polishing head or grundy head is made from a section cut from an old crankshaft, preferably a five-bearing one. Drill through the two main bearing parts of the shaft, fill with babbitt and re-drill for ¾ in. shaft. The bottom of the polishing head is drilled and tapped and then fastened to a gear blank with a bolt. The shaft is turned and threaded on the ends for ½ in. nuts. Lubricators are fitted.—C. E. Bradish, Boston.

NO. 1630—SHELLAC-PRESERVING BOTTLE

A bottle or jar to preserve shellac is made from an ordinary pint or quart fruit jar by drilling two holes in the top and screwing a sawed off brush through these holes so that the brush hangs in the shellac.—C. B. Smith, Nash Agency, Hollywood, Cal.

NO. 1631—HOISTING HOOK FOR FORDS

A hoisting hook for Ford front ends is made from a discarded radius rod by heating the ends, hammering them flat and then bending them to hook shape. It is well to offset them about ½ in. to clear the radiator. The ball can be sawed off so that a link or ring can be slipped on, this going on the hook of the hoist. This device is especially useful on 1917 cars, as there is no chance to lift them by the fender brackets.—W. C. McRae, Peterson & Hoff Garage, Douglas, N. D.

NO. 1632—BUSHING PULLER

A bushing puller is made from a ⅝-in. bolt 5 in. long, threaded pretty well to the head. This passes through into a steel cap which fits over a piece of pipe. A threaded collar with a flange on one end, to fit the bushing, is tapped to fit on the bolt. Pointed pins are put on the under side of the flange. In operation the bolt is turned and the pins go in the bushing, preventing it from turning, and a further tightening of the bolt pulls the bushing out.—H. Wirebaugh, Wilson Motor Co., Canton, Ohio.

NO. 1633—COTTER-PINNING

It was necessary to cotter-pin the end of a rod, but no drill was available to drill the hole, so slots were cut in the opposite sides of the rod with a hack saw and a piece of wire bent into a U-shape fitted in and curled around the end.—W. B. Wheatley, Charlotte, N. C.

NO. 1634—REMOVING AXLE GEARS

A quick way to remove Ford axle shaft gears is to use two pieces of pipe, one being 1½ in. i.p. size x 6 in. long, and the other being 1¼ in. i.p. size x 36 in. long. Place the short pipe, which just fits inside the gear teeth, and butt it against the anvil till the half-moon keys can be removed. Then put the axle in the long pipe and butt it against the anvil till the gear comes off. A wad of waste in the bottom of the pipe will prevent the ends of the axle from being battered. The same pipes can be used for replacing the gears.—W. C. McRae, Peterson & Hoff Garage, Douglas, N. D.

NO. 1635—LIFTING HOOK FOR ENGINES

A hook for lifting Dort engines is easily made from steel bar stock by bending one bar to fit under the water jackets and welding another bar to it. This latter bar is to be bent so that it clears the top of the engine and has an eye formed in the end so that it can be lifted with a chain hoist or tackle. This could also be made to fit other makes of engines.—C. C. Spreen, Flint.

NO. 1636—CYLINDER-LAPPING MACHINE

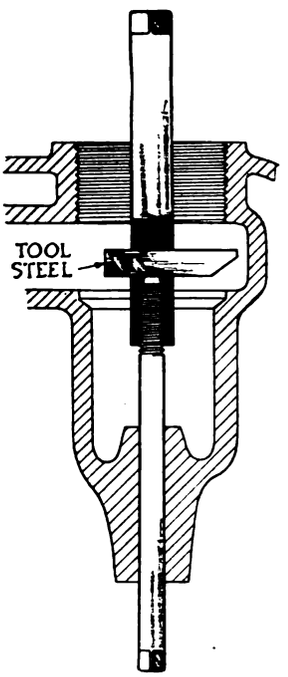
To lap in Ford cylinders an old connecting rod is sawed off near the big end and flattened out and a small universal joint welded onto it. The lapping piston is then put on the rod and the universal joint put in the drill press chuck.—D. E. Jaques, Jaques & Miller Garage, Thorntown, Ind.

$1 a Shortcut

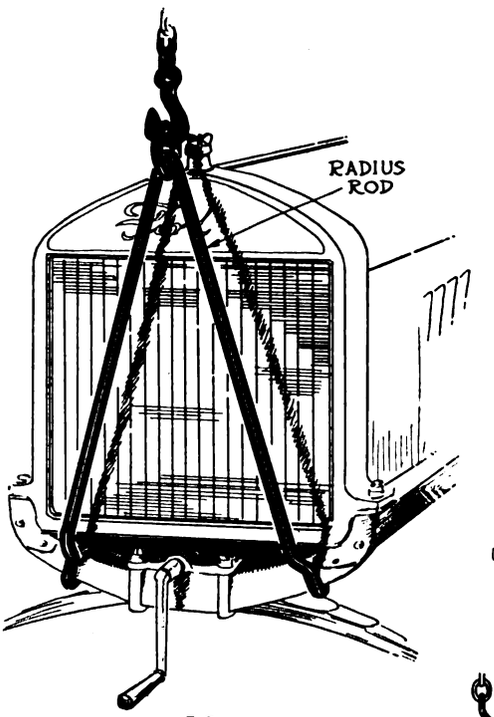
SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. MOTOR WORLD *will pay* $1 *for each Repairshop Shortcut that is accepted for publication. The only requirements are these:* 1—*Describe the shortcut briefly but clearly, in few words.* 2—*Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job.* 3—*Write on ONE side of the paper only.* 4—*Sign your name and initials, the name of the company you are with, and the town. Write plainly. If your name is unusual, or if there might be any doubt as to the spelling of the name, print it in capital letters with your pencil.*

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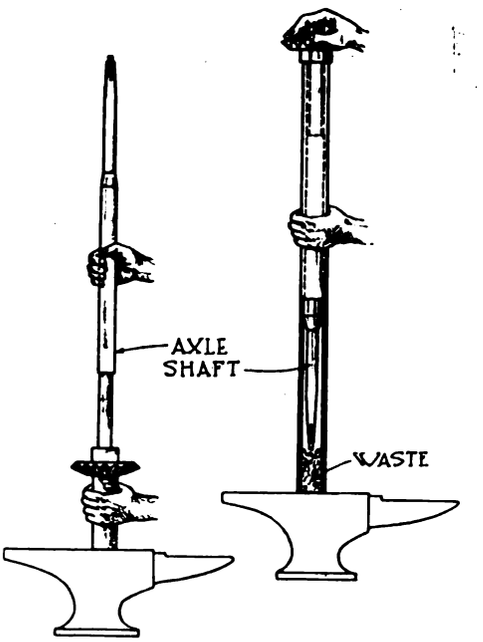
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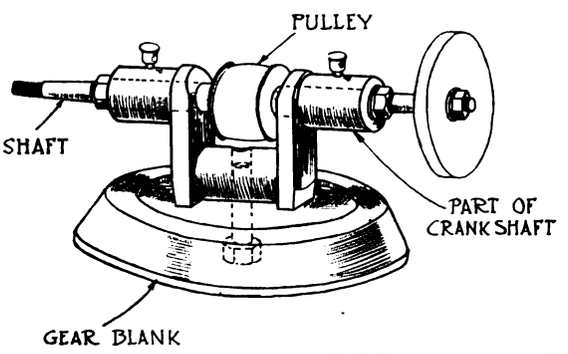
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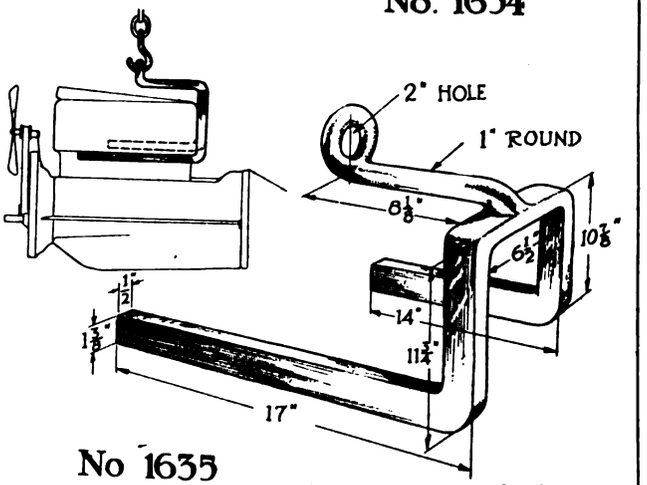
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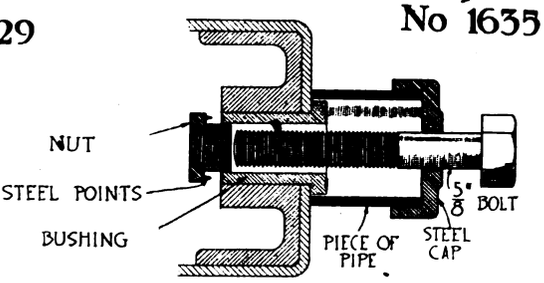
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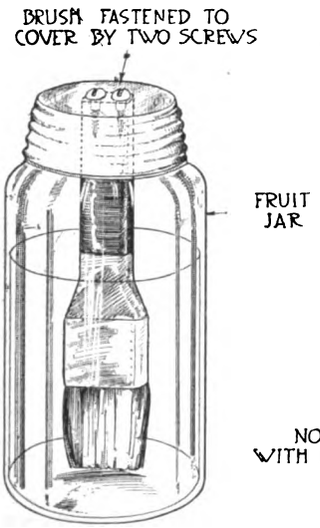
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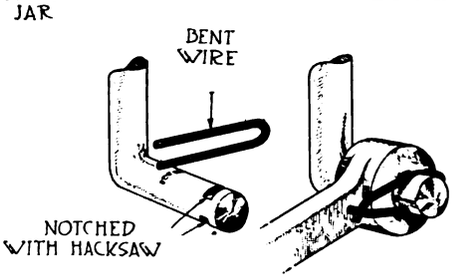
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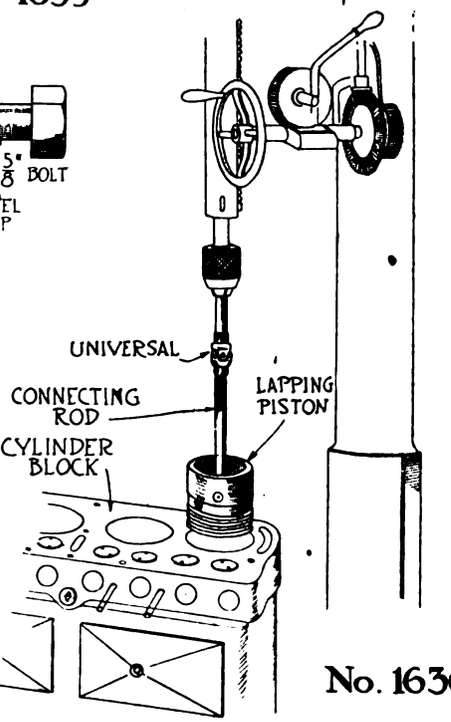
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No. 1630



No. 1633



No. 1636

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How to Lay Out a Building—I

THIS is the first of a series of articles which will take up in detail the layout and arrangement of buildings for the dealer, garage and repairshop.—Editor.

By Harold F. Blanchard

INTRODUCTION

ANY man can lay out his own building with the aid of this and succeeding articles which will complete a series.

The first few articles will deal with plans for plots of usual size and shape, and the remaining articles will show how these plans may be applied to plots of any shape. So that by saving and using the whole series it will be possible for a man to almost automatically devise a plan to suit nearly any set of conditions.

Provision has been made for showrooms, accessory stores, shops and garages of different sizes so that choice is not restricted in this particular; therefore, almost any specifications may be satisfactorily filled.

The object of the series is not to dispense with the services of an architect, but rather to aid one in producing a plan which the dealer, garageman or repairman, as the case may be, will find satisfactory.

It must be borne in mind that to design a satisfactory building for automobile purposes a man must understand the automobile business, and an architect's knowledge is too limited to be of much use in determining the general layout, although his services are absolutely essential in drawing the details and in writing the specifications.

Most important of all, an architect, and a good one, is necessary to insure the production of an attractive building inside and out. Building fronts are included, however, in this series for those who do not care to be guided entirely by an architect's suggestions.

The principles used in the construction of these plans are all carefully explained in the series, "How to Plan a New Building," which started in the Sept. 12, 1917, issue of MOTOR WORLD, and it would be helpful, although not necessary, to read these articles over in connection with this new series.

Most of the plans are for complete dealer plants, consisting of showroom, accessory store, offices, repairshop and garage.

This does not mean, however, that the series is only of interest to dealers and not to garagemen, repairmen, or accessory storekeepers.

While the showroom layout may not be of use to the garageman and repairman, it should be kept in mind that every plan has a repairshop and garage layout, and these are of just as much importance to these men as the showroom to the dealer.

Separate accessory stores have been designed for the man who does not sell cars, but no showroom has been drawn without including an accessory store in it, inasmuch as every dealer, except perhaps in the larger cities, should have an accessory store.

None of the plans is particularly suitable for large city use, inasmuch as special treatment is usually required; furthermore, a plan of this sort generally does not offer any difficulties which an architect even of limited knowledge of the automobile business cannot satisfactorily meet.

Only one ramp is shown, and this is for a layout which is rather common. Ramps are usually preferable to elevators, but it is next to impossible to standardize a set of plans employing ramps. It is easy to locate an elevator, but the location of the ramp must be carefully fitted to the individual plan under consideration if most efficient results are to be obtained.

Before considering the standard plans it is desirable to explain that each plan is made up of three units: The showroom, garage, and repairshop, Figs. 1 and 2, and it is by combination of these units used in the standard plans that a design for a plot of any shape may be readily effected. Hence the importance of the unit idea.

It is the purpose of MOTOR WORLD, in publishing this series of articles, to be of the greatest possible assistance to dealers, garagemen and repairmen in the arrangement of their buildings. We shall be happy to suggest layouts and to give constructive criticism on plans which have been prepared.

Those who write should be careful to furnish all the facts. For example, besides giving the dimensions of the proposed building there should be sent a rough sketch showing its location on the street with relation to other buildings, streets and alleys; also, the makes of cars handled, if any; whether a garage will be operated, whether repair work is to be done, and, if so, how extensive this department will be. We should also like to know whether it is the plan to sell accessories, and any other facts which would help to advise intelligently.

(To be continued)

The Unit Idea in Construction

1—*The showroom unit consists of showroom, accessory store, offices, rest room, accessory stockroom, etc.*

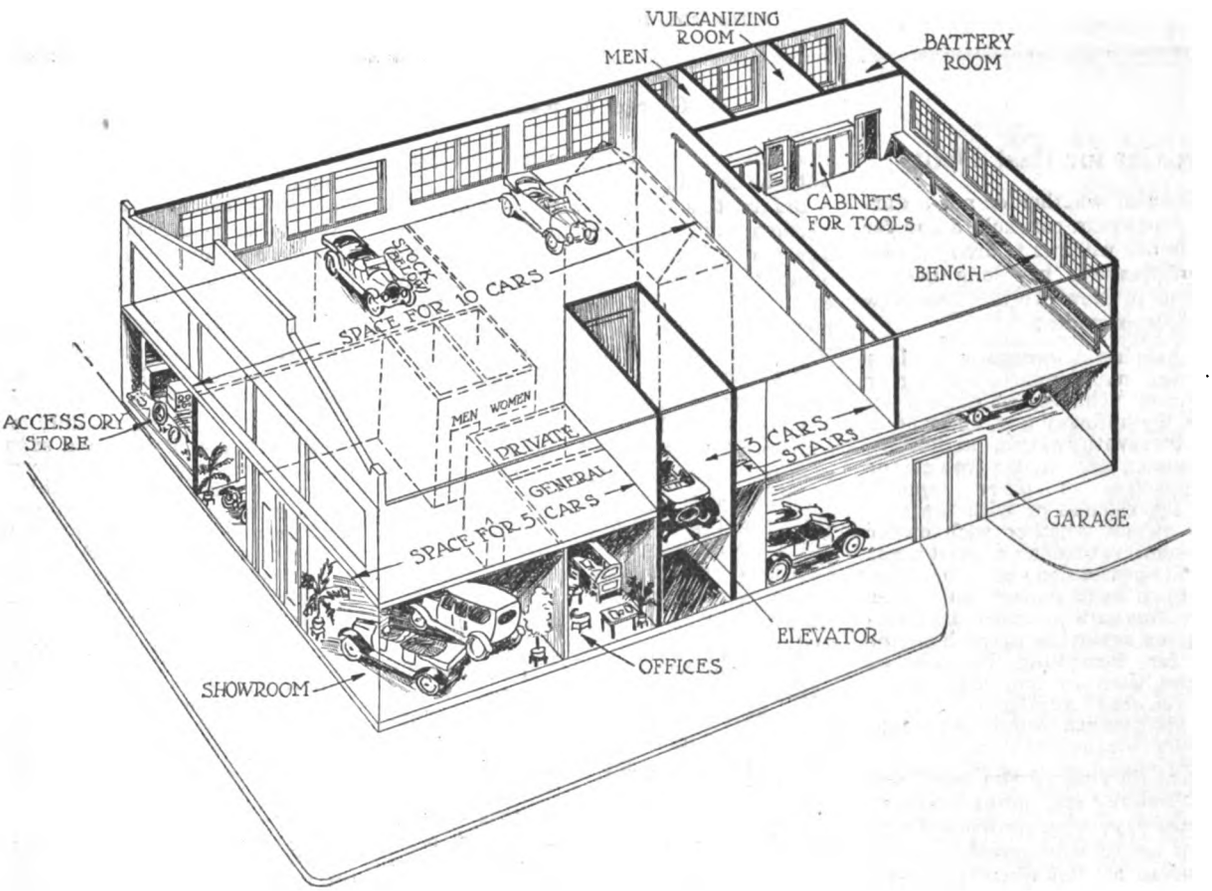
2—*The shop unit consists of the repairshop, including possible subdivisions, such as battery room, vulcanizing room, forge shop, machine-tool room, parts stockroom (unless combined with accessory stockroom), tool room, paint shop, etc.*

3—*The garage unit consists of garage, oil room, etc.*

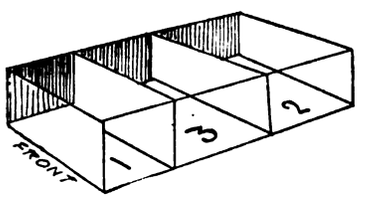
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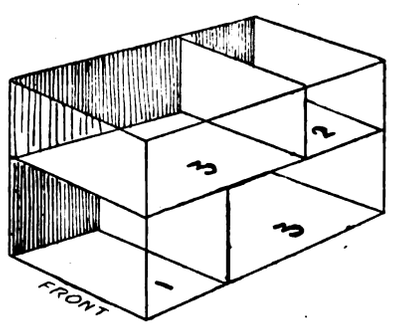
How to Locate Departments

First Principles in Laying Out a Dealer Building



This perspective view shows a complete dealer-establishment laid out according to the unit idea explained on the opposite page. The accessory store occupies part of the front. Back of it is the stockroom and at the rear of the showroom are the offices and lavatories for men and women. Entrance to the elevator is direct from the street, and alongside it is the stairway. The shop is compactly arranged at the rear of the second floor





1 SHOWROOM 2 REPAIRSHOP
3 GARAGE

The upper sketch shows a one-story building, and the lower a two-story building. Each unit should be an oblong. In both cases, the showroom unit extends across the front of the building. It includes the accessory store, offices, etc. The shop unit occupies a block of space at the rear, having the advantage of good light from the rear windows

This is the first of a series of articles on garage construction. Save all the articles

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THE LAW

As It Applies to Dealers, Garagemen, Repairmen

The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer

By George F. Kaiser

Lien on Car for Past Debts

The question of whether or not a garageman or repairman can hold a car for an old repair bill when it is brought into his place of business has long been a vexatious one in New York. The New York Lien Law provides:

A person keeping a garage or a place for the storage, maintenance, keeping or repair of motor vehicles, as defined by Article II of the highway law, and who in connection therewith stores, maintains, keeps or repairs any motor vehicle or furnishes gasoline or other supplies therefor at the request or with the consent of the owner, whether such owner be a conditional vendee or a mortgagor remaining in possession or otherwise, has a lien upon such motor vehicle for the sum due for such storing, maintaining, keeping or repairing of such motor vehicle or for furnishing gasoline or other supplies therefor and may detain such motor vehicle at any time it may be lawfully in his possession until such sum is paid.

Time and again dealers who have been unable to collect for storage or repair of motor vehicles have been confronted with the question as to whether they could hold a car of an old bill when the owner of it brought it into their place of business for further repairs. It has been sometimes contended that the dealer had the right to hold the car for the first bill and also for the second bill. On the other hand it has often been contended that the dealer's right of lien only extended to the amount due under the second bill. Unfortunately, up to this time the courts have never passed on this point and the New York statute which gives a lien to dealers has not been legally construed.

Those who contend if a motorist who owed a bill for work done several months ago brought his car to a garageman for further repairs that the garageman would have a lien for the old bill as well as the new, arrive at their decision because of the provision in the lien law which says: "A person keeping a garage, etc., has a lien upon such motor vehicle for the sum due and may retain such motor vehicle AT ANY TIME it may be lawfully in his possession, until such sum is paid."

They contend that the lien law is plain and that it gives a garageman a lien any time the car is lawfully in his possession until he is paid.

Before this statute was enacted, garagemen had a common law lien for storage and repairs, but that lien was lost where the owner was allowed to take the car out. Thus, before the present enactment, garagemen had practically no lien where cars were kept on live storage. It was to remedy this that the law set out above was passed.

Those who claim that under the circumstances outlined above the garageman has a lien only for the new bill say that, although it is true that the law provides a garageman has a lien on a car at any time he may be lawfully in possession of it, this means before the transaction is concluded, that is, during the time a motorist keeps his car in a garage and that the garageman's lien attaches every night that he brings it back to the garage even though he may take it out every day. When the car is finally voluntarily given up by the garageman, however, the transaction is ended and the lien is waived.

Those who uphold the latter view allege that when a lien is once waived it is waived forever and they say that where a car is voluntarily surrendered the provision of the law that a garageman may have a lien at any time a car is in his possession does not apply, because it relates only to a case where the dealings between the owner and garagemen are not terminated.

Examine Your Income Report

Every business man who filed his income tax return on or before April 1 should now examine the copy which he kept to see if everything is correct. Those men who made out their returns in a hurry at the last moment should not fail to do this. Where the return was made out under the supervision of an accountant, bookkeeper or lawyer, it would be a good idea to have the return reviewed by some person other than the one under whose supervision it was made out.

Oftentimes when this is done mistakes will be found which can be more easily corrected now than if they are not discovered until a later date.

The income tax law provides remedies both for those who are assessed a greater amount of tax than they think they should be assessed and for those who pay too large a sum in mistake. Form 46 should be used where there is a claim for refund, that is where too great a sum has been paid. Form 47 should be used where too great a sum is assessed and where the person filing the return thinks that a smaller sum should have been assessed. Form 46 follows:

This deponent being duly sworn according to law deposes and says that the facts stated below with reference to the claim are true and complete:

1. Business engaged in by claimant.....
2. Character of assessment or tax..... (State for or upon what the tax was assessed or the stamps affixed.)
3. Amount of assessment or stamps....
4. Amount now asked to be refunded.. ..... $.....
5. Date of payment of assessment or purchase of stamps.....

Deponent verily believes that the amount stated in Item 4 should be refunded and claimant now asks and demands refund of said amount for the following reasons:

.....

.....

And this deponent further alleges that the said claimant is not indebted to the United States in any amount whatever, and that no claim has heretofore been presented, except as stated herein, for the refunding of the whole or any part of the amount stated in Item 3.

Form 47 Provides:

This deponent being duly sworn according to law, deposes and says that this claim is made on behalf of the claimant named above, and that the facts stated below with reference to said claim are true and complete:

1. Business engaged in by claimant.....
2. Character of assessment or tax.....
3. Amount of assessment.....
4. Amount now asked to be abated.$....

Deponent verily believes that the amount stated in Item 4 should be abated, and claimant now asks and demands abatement of said amount for the following reasons:

.....

.....

Where a tax payer discovers that a mistake has been made in his return he should prepare a new return and file it with a notation to the effect that it is an amended return.

BUY LIBERTY BONDS

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The High Cost of Dealer Turnover

> Every time a manufacturer changes a dealer it costs the manufacturer money. Permanency of dealership is something that is going to be thought of in the future more than it has been thought of in the past.—H. C. Lower.

FOR the past several years the scientists of industry have been studying the question of labor turnover. They have busied their brains with what it costs the business if for a payroll of 1000 men 500 new ones have to be hired every year.

Henry Ford's experts have worked it out to a fine basis. Learned men talk of so-much-per-head and all of that, but, says H. C. Lower, who manages the Goodyear sales in Canada, with headquarters in Toronto, "few people seem to have figured on the high cost of turnover in dealers."

That it costs a manufacturer money if his dealer turnover is big is asserted by Lower, who has been studying the matter for some time. He says manufacturers should aim at permanency of dealers, because, he states, the constant change in agencies is nothing but one way of piling up the cost of selling cars.

Part of the Business

"The permanent dealer," says Lower, "is a part of the business. The manufacturer gets to know the dealer and the dealer learns to know the manufacturer. Each has confidence in the other. The period of adjustment is soon passed and the two get along well together.

"The manufacturer may help build the dealer up and make a good business man of him. This helps make the dealer a permanent institution in his own town and this permanency is reflected upon the product that the dealer sells.

"The dealer can be made a good accountant and business man. He will keep books. From these books the manufacturer can accurately determine what profit there is in retailing his goods. From these figures he is able to determine whether the discount on the goods is sufficient.

"Furthermore, permanency of dealers decreases the manufacturer's selling expense. His salesmen do not have to spend so much time selling the merchandise to the dealer. Bigger bills of goods can be sold and at a less cost.

Helps Distribution

"With permanency of dealers the manufacturer can effect a restriction of distribution. By this I mean that the manufacturer can sell a big volume of goods to a small number of dealers because the dealers will build an ever-increasing business. On the other hand, if the dealers are constantly changing their sales do not reach a maximum and the manufacturer has to carry more dealer accounts on his books to sell an equal volume of goods. Also, each dealer will make more money, which, in turn, builds the permanency element still more strongly.

"Permanency of dealerships tends to establish a headquarters for the purchaser when he has a preference for a certain article. For instance, if a customer likes Goodyear tires he is more likely to keep on buying Goodyear tires if he always finds them sold by the same dealer. The same applies to cars. If the public learns that the headquarters for a certain car are in a certain location and if the sign over the door is impressed upon him by having seen it many times the customer is more likely to buy that car than if the agency were constantly changing hands. The local standing of the permanent agency is highly important.

"In car selling, if a dealer jumps from one line to another he may carry over to the new line some damaging prejudices he acquired while he was competing with that line. This may injure the sales of the manufacturer of that particular car, even though the damage may not be such that it can be traced to its last ramification and set down on paper.

Car Owners Like Permanency

"A car owner hates to take a car into a repairshop, for sometimes when he comes out his trouble has only begun. If a dealer represents the same car year after year he becomes acquainted with all its little idiosyncrasies (sic) and can often take some little kink out of it by a small adjustment, whereas, where he is new to the line, he might run up a big bill on the owner and create a lot of ill-will.

"If dealers are premanent it relieves the manufacturer of the constantly growing burden of educational work. For instance, a tire dealer may learn that his tire should carry a certain pressure for a certain size and load. Or he may learn that the misalignment of front wheels causes trouble.

"If the dealer changes the manufacturer has to go all through this educational work again.

"More important still in educational work is the education of the dealer to the point where he will educate his customers. The dealer who has acquired the habit of teaching his customers what they should know is a valuable dealer, and if a new dealer is acquired a big asset is lost.

"If customers are not taught all the many little things they should know about the goods the manufacturer and dealer are both damaged, for the customer may hold ill-will against the goods merely because of some little thing he didn't know about them.

Feel Themselves Part of Organization

"Permanent dealers also come to feel themselves a part of the organization. They get into the habit of fitting in. They answer letters. They assent to factory requests. If the factory wants data on a certain subject it can write to the dealer with the assurance that an intelligent opinion and answer will be forthcoming.

"There has been a lot of dealer change in the whole motor car and accessory trade during recent years. It has caused a lot of comment and some dissatisfaction. It is a subject to which the manufacturers, especially of accessories, are going to pay considerable attention to during the next few years. In 'the States' our own company no longer issues a new contract every year. It merely mails out a renewal blank, the return of which, signed, constitutes a renewal of the contract."

Toledo Offers Automobile Courses

TOLEDO, April 12—The Toledo University is now offering courses in gasoline engine and automobile work. One of the motives of the university is to supply the industrial need at home which has been created by the large number of men taken for war work.

The university is ready to give to men who have had some experience in gasoline engines and automobiles instruction in engine repairing, efficient battery, self starters and generator work, tire repairing and oxyacetylene welding. The instruction is given in short units. The university has good equipment and instructors.

The educational plan is utilized from 7:30 a. m. until 10 p. m., and a large number of students are desired so that the plan is to be kept busy. It is possible for students to take instruction at odd hours to their convenience. The course is just beginning.

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Salesman vs. Order-taker

AN EDITORIAL

By C. R. Pierson, Salineville, Ohio

EDITOR MOTOR WORLD: You are certainly doing more than the average in spreading "Optimism" throughout the automotive industry. It seems that each new number of MOTOR WORLD is better than the last one. If there were just one person in each garage, salesroom, repairshop and accessory store reading MOTOR WORLD and spreading the information, we would hear considerably less pessimistic chatter.

We are doing what we can here to combat all pessimism and scatter all gloom. We are driving through all cars we can get. We are sold up into April and still hustling for more sales.

We are preparing for the biggest summer business we have ever had.

We have the entire county for a medium-priced truck and have a chassis coming which we expect to demonstrate through all our territory. We also handle the Ford truck in immediate territory and are sold out till summer.

We have an agency for a tractor, but cannot get any—have had numberless inquiries about them from our country trade. We will sell all we can get.

Now for a dig at some of the so-called salesmen.

What Constitutes a Salesman?

What constitutes a salesman?

After reading the series of articles on salesmanship which have been published in MOTOR WORLD, one would not expect to find such a lack of ability along this line as I found on a recent trip to Cleveland.

I spent a whole day at the automobile show, in hotel lobbies and salesrooms, looking over new models. It was a tour of inspection and education which I make annually. During the coming year I will be asked by many prospects for my advice on all makes from the "Hunk-o-Tin" to the "Palace on Wheels." It has been my aim to be so well posted that my advice is considered valuable.

In most instances I was courteously treated and given the information which I desired. The one exception is the cause for this article.

This particular car is equipped with a motor which has been thoroughly tested for several years in racing cars. It is small, compact, very accessible and very powerful. I had been asked about this motor so many times that I particularly desired to examine it.

As it was not exhibited at the show I spent much time locating it. When I finally found it the *salesman* (?) in charge treated me as though I were a Boche. I asked to see the car, and inquired if it had the D—— motor. He answered that he did not know and turned away indifferently. I felt like turning Everett True loose upon him. The poor, ignorant chump was a disgrace to the word salesman.

Lack of Common Sense

I wonder what the management of that agency meant by having such a brainless nonentity in charge of their exhibit? The name of that car will be odious to me forever, because of the association.

From all I have read regarding this motor which I wished to see, it is the best one yet. And from my present outlook I can afford a car of that price by next year. But I'll never buy a B——. I'll wait till some other manufacturer adopts this particular motor. And I'll never be able to recommend the B—— car to any prospective purchaser.

Accessory salesman, know your goods.

Along this line I wish to call attention to many of the accessory salesmen. Among the many who call at our garage just one knows *his* goods and *our* needs. He knows the width and thickness of brake-lining for every make and model of car, also the length it takes for outside and inside linings. He knows the weight hammer best suited to our needs, etc. He is a *salesman*—the rest are mere order-takers.

Now! Why do jobbers send out order-takers? There are many mechanics who could double the business of these order-takers in six months. My idea of real accessory selling is—

First—Know your own goods.

Second—Know what the garage man needs.

Third and last—Show him his needs, and then *sell him* intelligently.

Optimistically yours,

C. R. PIERSON,
Foreman Hart Motor Co.

Salineville, Ohio.

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"Over the Top" in Business

"The man at home must go over the top just as truly as the man in the trenches.

"There are as many business slackers as there are war slackers—and it takes as much courage to stay at home and fight business battles as it does to go to the trenches and fight the Hun, and both are essential."

HERE are two statements made by Guy W. Ellis, sales manager of the L. J. Robinson Co., Maxwell and Chalmers distributer, Detroit, in an address to the Detroit Adcraft Club:

Along in the summer sales began to drop off—as they did with everybody. The people living in the $25,000 homes, formerly the best purchasers, began to feel the effects of decreased stock values. Their money became tied up, and they decided to make the old car do. The well-to-do young man had doubts as to the future, and did not care to invest his money in a car. But the L. J. Robinson Co. knew that there were several classes that were getting money from the new conditions, where they had no money before, and here is how it found who those people were.

The city was divided into districts and each salesman given a part to cover, house to house. At each they were to ask:

Getting Real Dope

1. Whether a car was owned or not.
2. If so, what car was owned.
3. The nature of the business the person was engaged in.

And here is what they found:

That on Michigan Avenue, one of the busiest streets in the city, in the residence section, out of 250 numbers, two sedans and one used car were owned. And in another section, out of ten dealers in second hand clothes, etc., nine owned cars, and every one of these cost over $1,000. It was found that a drug store proprietor was absolutely removed from the prospect list, unless controlling several chain stores or employing clerks. The druggist's hours are too long to permit him to have a car, and it is of little use to him in his business.

Having determined the people that were purchasing automobiles, the next problem was to reach them and sell them a Chalmers or Maxwell. The machinist and the small retailer are not of the type that comes to the salesroom to buy a car. These are divided in two class—the one that can afford a car now, and could not last year, and those that could afford a car last year and didn't buy one. Industrial prosperity, etc., has brought them in surplus cash, and though still living in the same quarters as formerly, and with about the same living expenses, are now willing to buy a car.

It was found that people of this class were constant readers of the newspaper advertisements, and in their conversation with the visiting salesman "talked like the ad." Hence, it was found necessary to make every salesman familiar with all the advertisements published, so they too could talk like the advertisements.

Keep on Advertising

And here is an important point. The first place that many dealers cut down is in their newspaper advertising, and in this they lose their point of contact with many prospects. Newspaper advertising of itself tends to build up confidence and good will, and while the returns can not be measured, the decrease in sales resistence merits the investment.

In closing Ellis said: "If business goes to Hell, go to Hell and get business." This means more intense work, but there is less competition, and the dealer that survives is stronger than ever before.

Here is the result of one or two canvasses which will give some of the information obtained on a secondary business street in an outlying district. Altogether 102 new calls were made on retail merchants, and on all of these two more return calls were made on the first call (by "call" is meant only where a salesman secured an interview); out of this number four very live prospects were secured and eleven possible prospects, which were followed up. Three sales have resulted so far and two more are likely in the near future.

Locating Car Owners

In this particular canvass definite information was secured as to the percentage of automobile owners and the price class predominating in the various trades. A partial list follows, showing what makes of cars were the most popular in the different price classes:

Business	Percentage of Owners	Price Class Predominating
Bakers	15	Low
Butchers	90	Medium and low
Confectioners	1	Low
Dentists	80	Medium
Doctors	85	Medium
Hardware	95	Medium
Milliners	5	Medium
Tinsmiths	100	Medium and low
Undertakers	100	Medium and low

Another canvass in an entirely different section of the city, but also in an outlying business street, resulted as follows:

Number of calls	89
Very live prospects	3
Possible prospects	28
Result of canvass in sales with several more still on the fire.	3

Percentage of classified owners and price class predominating:

Business	Percentage of Owners	Price Class Predominating		
		High	Medium	Low
Bakers	37	0	12	25
Butchers	55	0	18	37
Confectioners	15	0	0	15
Dentists	33	0	0	33
Doctors	100	0	22	78
Druggists	44	11	22	11
Dry goods	15	0	15	0
Grocers	55	0	22	33
Florists	66	0	0	66
Furniture	66	0	0	66
Hardware	84	12	12	60
Jewelers	0	0	0	0
Milliners	0	0	0	0
Plumbers	0	0	0	0
Paper hangers	50	0	50	0
Saloon keepers	43	0	28	15
Shoes	50	0	50	0
Tailors	0	0	0	0
Undertakers	100	34	33	33
Gents' furnishings	33	0	33	0

Another canvass of an outlying business street does not show as complete records. Two hundred and fifty street numbers were canvassed. (This does not mean 250 calls.) This canvass resulted as follows:

Number of Sales	Kind	Price
2	Sedans	$1,850 each
1	7-passenger special	1,500 each

These sales were directly responsible for two additional sales a little later.

Another canvass which was very interesting was conducted by a comparatively new man in the automobile business—a young fellow 20 years old who had had no previous selling experience. After a week or 10 days' schooling he was sent up into Hamtramck, north of the railroad, to canvass a business street. He worked only 3 weeks before enlisting in the navy, but the result of those three weeks' canvass was three sales closed and two more which are very likely.

Receiver's Sale of Ross Motor Car

CHICAGO, April 13—The entire stock and equipment of the Ross Motor Car Co., Detroit, has been ordered sold May 14, by B. F. Evers, receiver. The inventory value is given as $150,000, and the sale will be conducted in Detroit by Samuel L. Winternitz & Co., Chicago auctioneers.

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Editorial Observation

Drive-Away Possibilities

IT is said that last year the motor cars of this country carried more passengers than the railroads. At that, there probably was a lot of motor car capacity that wasn't used.

This year there is a great deal of motor car capacity that isn't being used, and it opens a wide field for thought. First thing you know a big idea is going to flash out of the sky and the world will be still further startled at what an important element the gasoline vehicle is in national life.

One point is this: Daily there are being driven from the motor car factories great trains of motor cars. They go to points near and far, from Detroit to Chicago, Cincinnati, St. Louis, Kansas City and San Antonio. The distance is being extended daily.

These cars generally carry the driver and that is about all. Therefore, here is a big carrying capacity going to waste. What can be done to use it?

Let us first ask: What is there going in these directions that needs to be carried?

There are passengers and freight. Passengers perhaps would not care to make excessively long trips by motor car, but for certain distances and especially during the summer months, and depending on the speed the passenger wished to make, there are trips on which these cars could carry passengers.

There are also parts, tires and accessories going out from the Central West area to distributing points. For instance, the Overland and the Akron tire factories are not far apart. Running to Akron for tires, or having Akron deliver the tires to the drive-away man in Toledo, or in Detroit for that matter, would not be difficult.

These cars could then carry parts, tires and similar products to the final destination or to intermediate points. There would be some systematizing and planning necessary to get the thing in working order, but it could be done. It would relieve the railroads of freight, would insure delivery of the merchandise and should make the goods cheaper to the dealer, provided the freight is now figured as part of his cost.

Right away some drivers will have visions of an armful of tires jolting around and ruining the tonneau of a new car. If looosely put in, that might happen, but, as we said before, there would be some planning needed and this applies to both passengers and freight.

Perhaps there is some article that could not be advantageously carried. There are many points to be worked out, but a standard crating that would fit the floor of a tonneau and cost little should be easy to make.

Perhaps some dealer could buy trailers in the manufacturing centers, hitch them to his new cars and draw goods overland that way. Selling trailers is something dealers should be looking into anyway.

It is not to be understood from what is said here that every dealer who drives cars from the factory should forthwith rush headlong into the matter to the damage of his cars and himself. But he should seriously consider the subject. He should consider if there are ways in which the unused capacity of these cars can be utilized to some purpose.

Maybe a central bureau operated in Detroit may some day be an actuality, with an office staff and a multitude of tasks performed annually.

Once some one points the way the rest will gladly follow. It is something to think about.

The National Automobile Dealers' Association

THE National Automobile Dealers' Association, which was formed about a year ago in a more or less troubled atmosphere, seems to have gotten away to a good start with possibilities of becoming the trade factor of which every one has been dreaming for many years.

There have been associations and associations and funerals and funerals. The number of funerals has generally depended upon the number of associations formed.

No one had much enthusiasm in the weeks immediately following the formation of the new National last summer. There were hopes—but reduced to paper and actual facts they didn't make a very imposing array.

Within the last few months, however, the National has begun to make progress. It has taken in members. It has grasped various situations in a manful way and done a few things. It has been working instead of wishing.

A great deal of the result has been due to one factor—the association's president—who has done a lot of work. After all association success has been analyzed it generally simmers down to the single fact that somebody did a lot of work.

President Vesper has attended many meetings, sometimes traveling hundreds of miles for the privilege of making a 20-minute speech, and has given a lot of time to the job. If he receives the co-operation that his effort warrants the trade should acquire the organization it has needed for so long but never had.

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Letters from Readers

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

Brewer Stages a Car Show

Editor Motor World: We had a very pleasant evening last night, and conducted what is known as Brewer's Automobile Show and Reception. First of all, we had a big parade of cars sold by the Brewer Motor Car Company, and were able to get fifty-five cars in line. The line of march led over the principal streets of Spokane, and we first loaded a good band of union musicians on a large truck, which made things more interesting.

During the evening we gave a continuous band concert, and had the following displays: The new Aero-8 Cole, the Cole 8 touring car, the Cole 8 roadster special, the Saxon Six touring car, Saxon Six touring car special, Saxon Six chummy roadster, Saxon Six Sedan, Westcott Six 1918 model seven passenger touring car, the Cole Eight Toursedan, Indiana truck, Truxtun truck attachment,

The Goodyear people put on a "Conservation Evening," giving lectures on tire conservation, and a nice display. The B. F. Goodrich Company gave away road maps and souvenirs. We also had a large display of accessories.

One of the main features of the evening was five different kegs labeled as different oils, from which cider was drawn and given to the crowd. This seemed to make quite a hit, although there was very little kick in it. The cider went over a counter, known as "Brewer's Bar."

This Automobile Show and Reception was our second annual affair, and was well attended. We expect to make it an annual affair, and look forward to it always with pleasure. Our place was very well decorated, both inside and out, flags of our nation and the Allies predominating. Also our floral decorations were very profuse.

I think this idea is a splendid one, and can say from experience that it works out. Particularly the parade feature is to be desired, because it gives the community an idea that there is something doing.

In order to get our owners interested in the parade, we present them either with a set of pennants, a watch fob or something similar, for their participation in the parade. Another thing, many of our owners are very, very loyal and they do this little thing for us largely on account of the good feeling they bear toward the Brewer Motor Car Company.

On the 18th of April I start a series of six lectures on automobile construction and care, giving one every Thursday evening. The class will be limited to 100 members, and a large number have already enrolled for the course. I find this another very good advertising feature. The lectures will be given at the garage.—C. P. Brewer, President Brewer Motor Car Company, Spokane.

Has Orders for 3500—Not 220—Cars

Editor Motor World: In your March 27 issue, on page 52, you quote our company as having orders on hand for 220 of our new cars. We wish to correct this statement by advising that we have signed orders on hand for 3500 of our new six cylinder cars, our output at the present time being 20 cars per day. This will, however, be increased within the next two weeks to between 30 and 40 cars per day.

We are continuing to manufacture the four cylinder roadster, but with many improvements over last year's model. We are also continuing to manufacture the eight cylinder, four-passenger car and eight cylinder chummy.—Scripps-Booth Corp., Detroit.

"Could Not Do Without It"

Editor Motor World: I have been a very attentive reader of your paper for about 2 years and find that I could not do without it and run a garage.

I wish to express my appreciation of your journal in the page of "What Others Think" by telling of some of the things it has done for me and will do for others if they will try it as I have done.

Running a garage successfully is an art and a person must be up-to-date or there can be no success.

In reading the columns of The World you will find many ideas and plans which will benefit all of us if we use them.

The best that I have gotten from your journal was system, I also have adopted "Cash Only." I sent my customers notices and used the same as was printed in early issue; it works fine. I would not go back to the credit system again.

I believe that the sooner the garages get on the cash basis the better it will be for them and for their customers. I believe that goods can be sold cheaper and that anyone successful in crediting can be more successful by doing a strictly cash business.—E. C. Dafforn, Zenda, Kansas.

Good Idea

Editor Motor World: War work is calling so heavily for automobile repairmen and mechanics that the shortage of this kind of help is going to cause quite a problem, and I believe that if your publication could start a campaign that would tend to produce more repairmen and mechanics it would be doing the trade a great deal of good.

In a great many towns there are automobile schools. In our Toledo University we have an automobile class, and I think this is going to be a mighty good thing. I believe you will agree with me that something must be done in the way of replacing the repairmen who go to the front. The Government is making organized efforts to get the men, and the trade ought to make organized efforts to replace them. What would you think of starting a campaign along that line?—Stanley Roberts.

Tractors Run on Kerosene

Editor Motor World: In the Motor World of Feb. 20 appeared an article in regard to fuel for tractors, stating that there is no tractor built that will run long on kerosene.

I have an 8-16 Avery, only used two weeks. After reading said article, I wrote to the Avery company, asking them what experience they had had with kerosene, and how long some of their tractors have been run on kerosene; also told them I'd rather pay the difference in gasoline and kerosene if they thought the latter would harm the motor.

I am enclosing their answer, hoping

JUST 7 DAYS MORE AND THEN

The Summer Merchandising Number of Motor World will be here.

It will be just what its name indicates.

It will contain a lot of ideas for getting summer business.

It will discuss our NEW business conditions.

It will tell you a lot of things you'll be glad to know. Watch for It!

Order your extra copies NOW.

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to hear from you what you think about burning kerosene in an Avery 8-16; also state whether you think it necessary to have an air filterer on the hot air pipe on the Avery.—Alfred Klein, Lomira, Wis.

Mr. Alfred D. Klein, Lomira, Wis.

We are in receipt of your favor of the 4th, and, without referring particularly to other makes of tractors, will say that we know of no reason at this time why our 8-16 tractor using kerosene will not prove as durable as used with any other fuel.

The main reason why many other makes of tractors cannot use kerosene successfully is because they cannot burn all the fuel. Kerosene is much heavier than gasoline and a certain proportion of the fuel is apt to pass into the cylinders without being vaporized.

This works by the piston rings into the crank case, has a tendency to thin the lubricating oil and, of course, the lubricating oil in that condition will not answer the purpose for which it is being used, as it does not possess lubricating qualities when mixed with kerosene that it does when used as pure oil. The result is the cutting out of the cylinder and piston rings.

The tractor that you have, however, is equipped with what we call a gasifier. The fuel is thoroughly vaporized before going into the cylinder and is burned completely. This is clearly shown by the fact that there is scarcely any smoke from the smoke stack.

Quite naturally, a company building a tractor that cannot burn kerosene successfully and in which the burning of kerosene is apt to result in damage to cylinders and rings will try and present some argument as to why some other fuel should be used, but if they will equip their tractor for burning kerosene properly, the objections they make cannot be sustained. You need have no fears whatever in regard to burning kerosene in your tractor.—Avery Co., Peoria, Ill.

Accessory Jobbers' Show

Editor Motor World: Regarding the proposed accessory show to be held in the fall by the National Association of Automobile Accessory Jobbers, we ourselves are extremely glad that this proposition has come to a head, very largely on account of the fact that we are seriously handicapped at the present time by refusal of manufacturers to prepare their proposition for the jobber until the time of the New York and Chicago shows. Having to wait for this information makes our spring catalogs very late, particularly under present conditions.

Much business is therefore lost both for us and the manufacturers, as dealers put off ordering until the new catalogs come out.

By getting our information in October or November, we shall be able to get our catalogs out in January and February instead of April and May. We are heartily in favor of the project.—The Canadian Fairbanks Morse Co., Ltd., A. J. Hopkins, General Head, Accessory Dept.

Philadelphia Garagemen Plan Atlantic City Trip

Will Go in July—This Outing to Be Annual Affair for Garage Association

PHILADELPHIA, April 12—The Philadelphia Garage Association is looking forward to the big motor car run it is intended to make to Atlantic City in July. It will be the first event of the kind in the organization's history and it is planned to make this outing an annual affair. Each car will be decorated with appropriate banners and streamers announcing the identity of the organization, and headquarters for the event probably will be at one of the big beach-front hotels.

Another matter occupying the attention of the garage owners is that of the increasing number of elaborate service stations erected by the large oil companies. A rapidly increasing number of these is being built at great expense and they are well advertised. This, it is claimed by the garage owners, is equivalent to allowing the garagemen to act as salesmen for the oil concerns, which promptly, in effect, bids against them with all its might in these service stations, which sell at the same figure as the garagemen. Here, again, it is felt some concession should be made to the garage owners. At present, it is claimed, there is no profit in handling oil and gasoline in Philadelphia on that basis.

Labor is high in this city, and 60 cents an hour is demanded by repairmen, who are scarce, owing to the demand at the shipyards and munition plants along the Delaware and at Hog Island.

The Philadelphia Garage Association is considering making the Hotel Adelphia its permanent headquarters, instead of its present hall at 2156 North Broad Street. The subject probably will be brought up at the next meeting.

An Enterprising Car Show

Editor Motor World: We have just had an automobile show as an opening for our new garage. It was such a success I am passing a sample of our advertising along to you.

[This event was well advertised and was the best sort of a success, as the letter from Maudlin shows].

There were 446 people registered and looked over our salesroom on our opening day and we had about 800 at our show in the evening, all the hall would hold.

One ticket was good for a family or anyone they wished to bring with them. —Maudlin Motor Co., By Bert Maudlin.

Navy Has 80 Liberty Planes

WASHINGTON, April 12—Announcement has been made here that the Navy Department now has more than 80 airplanes equipped with Liberty engines, and that a large number of the Liberty engines have already been shipped to Great Britain and France. It was also announced that an airplane equipped with a Liberty engine recently attained a height of 21,500 ft., thereby breaking previous records. Announcement was made that General Pershing now has well over 100 combat airplanes in his organization.

Tests of Non-Shatterable Glass

WASHINGTON, April 12—Tests have been made by the Bureau of Standards on two types of non-shatterable glass intended to protect the eyes from splinters when accidents occur which fracture the glass used in spectacles, aviators' goggles, face masks, windshields, etc. One of the glasses tested, designated the A type, has one side covered with a layer of celluloid, while the other, the B type, has a layer of celluloid sandwiched between two layers of glass.

Comparative values of the dynamic strength and shatterability of the glasses were obtained by subjecting the glasses to sudden shock or impact either by dropping a steel ball on the glasses or by shooting a bullet at them. Concerning the B type, which is the glass known as Resistal, made by Straus & Buegeleisen of New York, the report says that when subjected to the dropping steel ball test, in general it lost no splinters from the rear side until the front was completely shattered and the steel ball struck the intervening layer of celluloid. When a 30-caliber bullet was fired at the glass from a distance of 25 yd., with a muzzle velocity of 2700 ft. p.s., it made a clean-cut hole and produced numerous irregular cracks in each of the sheets of glass separated by the celluloid. These cracks were confined to a circular area of about 2 in. radius, and the remainder of the 4 by 10-in. plate was firmly held against rubber strips on a target. All the glass except a small area immediately around the bullet hole was firmly held by the celluloid.

Montreal Considers Continuing

MONTREAL, April 12—A very important meeting of the Automobile and Allied Traders of the Island of Montreal is being called at an early date by the directors of the Montreal Automobile Trade Association for the purpose of considering the future policy of the association.

Although it was practically decided at the annual meeting to suspend active operations until after the war on account of there being little possibility of the annual motor show being held in January, 1919, it is felt by a large number of members that it would be very bad business policy to close down, and in view of this feeling the association's offices are being kept open and the executive staff fulfilling their duties as usual.

Women in Garages

WILMINGTON, DEL., April 12—Because of the scarcity of male help, some of the smaller garages in Wilmington are employing women to help out.

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The RETAIL NEWS

NORTHWEST

M. L. Blair Motor Co., Council Bluffs, Iowa, has moved to Omaha, Neb.

Dick Lewis and **George Sauer**, Everly, Iowa, have bought the Soehren Garage.

Hill Brothers, Kellogg, Iowa, have sold their garage to Henry E. Selle of Grinnell.

N. H. Healy, Black Duck, Minn., sold his repairshop and tire business to A. E. Arney and R. Holler of International Falls, Minn.

Walter Homberg has opened a repairshop in Center City, Minn.

Lindvall & Peterson have opened a vulcanizing station at International Falls, Minn.

E. Schardinel, George Nelson and **J. C. Neale**, Lake Benton, Minn., have bought the Senn Garage.

Gilbert Handegaard, Lake Park, Minn., has bought L. M. Olson's Pioneer Garage.

L. M. Olson, Lake Park, Minn., has leased the Walford Garage.

E. C. Pederson, Mahnomen, Minn., will continue the Thompson-Pederson Auto Co., A. L. Thompson having retired.

L. J. Bartlett & Co., Minneapolis, have moved from 1301 Hennepin Avenue to 1629 Hennepin Avenue.

The Sturr-Bullard Motor Co., Minneapolis, has moved to 1208 Harmon Place, Benjamin Kiefer taking its former garage at 85 Western Avenue.

Wilson & Robertson, Minneapolis, have bought the garage business of C. W. Hink, at 65 Western Avenue, Minneapolis.

The Sandstone Garage Co., Sandstone, Minn., has leased its garage to Miles & Lagergren, Minneapolis.

B. H. Warner and **J. E. Preston**, Spring Valley, Minn., have bought the accessories business of J. E. Livesey.

P. L. Hedin, Willmar, Minn., has bought the repair business of the J. H. Wiggins Co.

V. K. Miller has opened a tire repairshop at Bottineau, N. D.

O. B. Kongslie, Fortuna, N. D., bought the supplies and repair business of P. J. Quaine.

The Glenfield Garage, Glenfield, N. D., has been bought by Jens Larson, Courtenay, N. D.

Martin Hildremyr, Petersburg, N. D., will manage the Petersburg Garage Co. alone, O. H. Reiten having retired.

Dick Ulrich, Battle Creek, Neb., has bought a half interest in the garage of J. M. Lederer.

E. M. May, Beaver City, Neb., has bought the Gaddis Garage and taken possession.

John Kasparek, Brainard, Neb., has bought the Ford Garage.

Charles Munsey, Broadwater, Neb., has bought the interest of R. C. Duelin in the Broadwater Garage.

Dale & Fink, Elgin, Neb., have opened a repairshop.

Harry Vaughn, Fairbury, Neb., has bought the Beaver Garage.

Maynard & Frey, Gering, Neb., have bought the garage of Ayres Brashear.

Flynn & Flynn, Grant, Neb., have bought the Grant Garage.

Roselle & Brown, McCook, Neb., have bought the Willard Service Battery Station.

Fred Haas, Madison, Neb., has bought the garage of John Hall.

E. J. Vonglern, Nebraska City, Neb., has bought an interest in the E. L. Pratt Auto Co.

Roy Kimbel, Oshkosh, Neb., has bought the interest of his partner in the Ford Garage.

D. H. Farmers and **F. E. Rathbun**, Palisade, Neb., have bought the Hayes Ford Garage.

Orley Prather, Reynolds, Neb., has bought the garage business of V. A. Jay.

Charles Jackson, Scottsbluff, Neb., has leased quarters and will open a supply station.

Fred Franke, Jr., Dobton, S. D., has bought the E. Engman Garage.

E. R. Judy Motor Co., Huron, S. D., handling the Maxwell car and supplies, has opened a main office and salesroom at Aberdeen, S. D. E. R. Baddeley is salesmanager.

Central Auto Machine Co., Mitchell, S. D., has bought the garage business of C. H. Blenkiron.

Kopke Bros., Sisseton, S. D., has bought the Mead Garage.

The Geyser Garage, Geyser, Mont., has been taken over by Addy Bros.

J. E. Jacke, Thompson Falls, Mont., has bought the interest of W. N. Malberg in his garage business.

New Garages

Ed. McGowan .....Anamosa, Iowa
Fred Grill.....Lake View, Iowa
William I. Schmitt.....Spirit Lake, Iowa
Peter Matson .....Ada, Minn.
C. O. Donner .....Alexandria, Minn.
Cool & King.....Farmington, Minn.
A. J. Kalz.....New Ulm, Minn.
J. C. Thompson.....Rochester, Minn.
Ed. Sorenson .....Viking, Minn.
F. D. Zimmerman.....Billings, Mont.
Smith Garage Co.....Whitehall, Mont.
Machurek & Vanderkolk...David City, Neb.
J. O. Geil.....Elk Creek, Neb.
Fred Pearson.....Steele City, Neb.
Jacob Bitterman.....Beulah, N. D.
Peter Gilberg.....Church's Ferry, N. D.
Michael Durken.....Minto, N. D.
Canova Implement Co.....Canova, S. D.
Oscar Hegre .....Montrose, S. D.
H. S. Tepner.....Pollock, S. D.
A. P. Foley.....Watertown, S. D
Square Deal Auto & Tire Shop, Watertown, S. D.

MOUNTAIN

Georgeson & Fifield have leased the garage of the Johnson Brothers Service Co., Preston, Idaho.

The Ganter Sales Co., Logan, Utah, opened a battery station and repairshop at 135 North Main Street.

U. B. Johnson and **L. E. Borchert**, Logan, Utah, have opened a repairshop.

The Plant Auto Co., Logan, Utah, has purchased the garage and business of the Motor Sales Corp.

New Garage

Youngquist Brothers ....Brigham City, Utah

MIDDLE WEST

The Enterprise Garage Co., Decatur, Ill., has opened a sales agency and repairshop at 550 North Main Street.

L. A. Walker, Heyworth, Ill., has sold his garage and Ford sales agency to the L. M. S. Motor Car Co., Bloomington, Ill., and the latter will hereafter operate the business as a branch agency with W. R. Johnson as manager. The building formerly occupied by Walker will be extensively remodeled and enlarged.

Frank Braden, Maroa, Ill., has purchased the building and garage business of E. P. Kent.

E. E. Morrison, Saybrook, Ill., has purchased the garage and sales agency of J. E. Wyckoff.

The Indiana Vulcanizing Co., Crawfordsville, Ind., has opened quarters at 129 North Washington Street.

Paul Dudeck, Monroe, Mich., will open a Willard battery service station at 122 East Front Street.

The Weier Motor Sales Agency, Mt. Clemens, Mich., has taken on the distribution of the Dort and the Republic truck and has opened a salesroom on North Walnut Street.

The Monroe Sales Co., Monroe, Wis., has opened salesrooms for passenger cars, commercial vehicles, tractors, silos and farm equipment.

Frank L. Reinhard, Neillsville, Wis., has purchased the garage of Harry Svirnoff and will make extensive improvements.

New Garages

D. G. Meyer—Reo Garage....Green Bay, Wis.
Dicke Motor Car Co.....Manitowoc, Wis.
City Garage.....Prairie du Sac, Wis.

EAST

The Farley & MacNeil Co., Boston, has moved to new quarters on Federal Street.

New Garages

A. J. Crystal.....Jeannette, Pa.
J. F. Bowman.....Lancaster, Pa.
David Bradley.....Philadelphia
William C. Carman.....Philadelphia
J. D. Clarkson.....Philadelphia
Cliveden Garage Co.....Philadelphia
Michael Donnelly .....Philadelphia
Fritz Co. .....Philadelphia
L. C. Haushon.....Philadelphia
L. H. Hirsh.....Philadelphia
Keystone Supply Co.....Philadelphia
J. Philip Keck.....Philadelphia
J. Krouse .....Philadelphia
Ambrose Letter .....Philadelphia
Lewis Jones Estate.....Philadelphia
J. W. Peoples.....Philadelphia
Percy Garage .....Philadelphia

SOUTH

C. A. Warren & Bros., Metter, Ga., have purchased the garage and repair business of the Metter Auto Co.

J. K. Hadler, dealer in Kelly-Springfield trucks, has opened a branch in Norfolk.

New Garages

Union Warehouse & Garage...Anniston, Ala.
Columbiana Garage Co....Columbiana, Ala.
O. K. Garage.....Springfield, Ala.
H. T. Pace.....Albany, Ga.

SOUTHWEST

A. C. McGinty, J. M. McAnulty, H. S. Sturgis, A. D. DeLappe and **W. H. Duff**, Pittsburg, Kan., have bought the Ford Garage.

Bassler Bros., Ellis, Kan., have bought the H. G. Fuller & Son Garage.

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R. H. Reed, Ottawa, Kan., has sold his interest in the Hempy-Reed Motor Company to George W. Early.

Ernest Ryan, Cherokee, Kan., has bought an interest in the Burk Garage.

G. L. and G. A. Selders, Ottawa, Kan., have bought the garage of S. and E. Haskin.

Louis Atherton, Augusta, Kan., has opened a vulcanizing plant.

Rex Curtis, Canton, Kan., has sold his interest in the Curtis Motor Co. to G. W. Harmon.

L. L. Cornse, Beloit, Kan., has bought the Downs Tire Works from George Billings.

C. H. Weston & Son, Phillipsburg, Kan., have leased the McKenzie & Jacobs Battery Service Station and auto repair department.

F. W. Brett, El Dorado, Kan., has bought A. J. Houson's vulcanizing shop.

Orsen and Wm. Hamilton, Soldier, Kan., will open a battery, ignition and vulcanizing establishment.

R. E. Goure, Abilene, Kan., has bought the Abilene Vulcanizing Tire Shop.

George Billings, Downs, Kan., has sold his tire repairshop to L. L. Cornse.

James Leach and **Otto E. Teske,** Onaga, Kan., have bought the garage and machine-shop of B. Dulac.

Merle Warren, Newton, Kan., has moved his automobile business to new quarters at 115 West Broadway.

Joseph and Anthony Witt, Russell, Kan., have bought the Radke Bros. Garage.

The C. & A., Auto Co., Pittsburg, Kan., is remodeling its garage. It will discontinue its storage business.

Howe Woodruff, Horton, Kan., has purchased the garage of DeVere Dove.

Hartzel & Downey, Hutchinson, Kan., have opened the H. and D. Auto Supply Storage Co.

S. D. DeLappe, Pittsburg, Kan., has bought the garage of L. H. Billings.

Bauguess & Archer, Densmore, Kan., have bought the garage business of L. L. Archer.

Chas. H. Blackburn, Grainfield, Kan., has leased his garage to F. P. Smith & Co.

W. C. Olmstead, Wakeeney, Kan., has bought the Overland Garage from C. H. Poffenberger.

Fred Maas, Manhattan, Kan., proprietor of the Independent Garage, has sold the garage and repairshop to Lou Bardwell and Bryon Blake.

Obie Wright, Auxvasse, Mo., has sold his accessory store to Boulware M. Jameson.

C. R. Turner, Galt, Mo., has reopened the Humphreys Garage.

J. W. Shipley, Harrisonville, Mo., has bought J. L. Patrick's garage and accessory shop.

Claude Brown, Bethany, Mo., has sold his Inter-State Tire Shop to S. W. Gault.

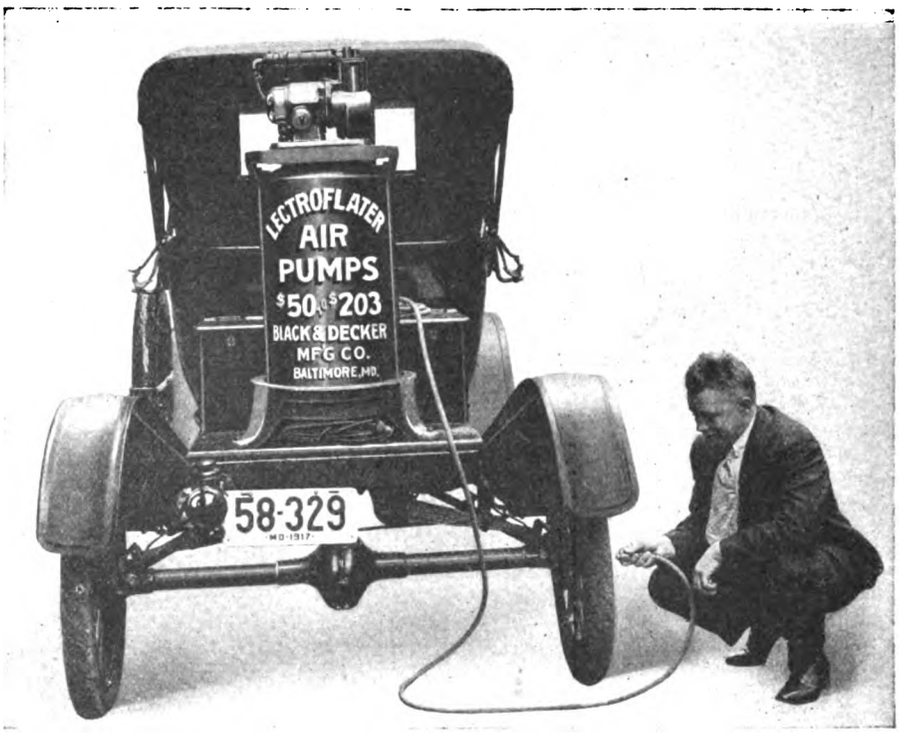
G. B. Brown, Joplin, Mo., will open an automobile battery and supply company.

Albert Mercer, Maryville, Mo., has sold his interest in the repairshop to his partner, Russell Bagby.

Lawrence and John Coggin, Republic, Mo., have bought the City Garage from Frank Shipley.

N. B. McClure, Bennington, Okla., has bought the Bennington Garage from John Baker.

L. Simpson, Quanan, Tex., has bought the Barney & Jones Garage.



This is the "Flater Flivver." Ever see one? It's just an ordinary flivver with a No. 2 Lectroflater, made by the Black & Decker Mfg. Co., mounted on it. Just now, the outfit is being demonstrated to New England jobbers

New Garages

Andrew Pierce.....Neodesha, Kan.
Jess O. Spray.....Salina, Kan.
Cromb-Merril.....Ellis, Kan.
Herman Faunce.....Oskaloosa, Kan.
Bullock & Dinwiddie.....Sylvia, Kan.
Rumford & Lipp.....Leavenworth, Kan.
Ben F. McKee.....Arma, Kan.
W. S. Fees.....Fredonia, Kan.
C. E. Florence.....Wichita, Kan.
Van Meter Bros.....Parsons, Kan.
Haskins & Burnett.....Eskridge, Kan.
Larzelere Bros.....Troy, Kan.
Lew Earnest.....Independence, Kan.
Jack Moore.....Independence, Kan.
Mrs. Kate Mauk.....Eureka, Kan.
Jas. Cochran.....Hartford, Kan.
J. P. Klamm.....Paola, Kan.
Ben F. McKee.....Arma, Kan.
Oscar H. Tilley.....Marysville, Kan.
Meridian Road Garage....Moundridge, Kan.
Weispahl & Bruhn.....Herndon, Kan.
Albert Henry.....Platte City, Mo.
C. W. Riggs.....Aville, Mo.
General Auto Co.....Washington, Mo.
L. J. Copeland.....Ellington, Mo.
John Oppenlander.....Richville, Mo.
Hopkins Bros.....Garden City, Mo.
General Auto Co.....Washington, Mo.
R. S. & Geo. M. Chenoweth...Carthage, Mo.
W. G. McNeal.....Miami, Okla.
Huber Walters.....Hockerville, Okla.
Geo. C. Hoebing.....Okarche, Okla.
C. B. Root.....Clinton, Okla.
Garber Auto Supply Co.....Garber, Okla.
R. C. Rosser.....Binger, Okla.
Joe Donahue.....Ponca City, Okla.
Whitaker & Shields.....Eufaula, Okla.
Pease & Morgan.....Edmond, Okla.
Rice & Rice.....Porter, Okla.
O. A. Brannon.....McKinney, Tex.
G. C. Smith.....Kaufman, Tex.
J. H. Harper.....Kosse, Tex.

Try This in Your Own Shop

DES MOINES, April 12—The Sears Auto Co. believes the daylight saving law was made for the benefit of the food producer, and to back up this patriotic move Manager C. O. Hart has planned an elaborate gardening contest for his employees.

A prize of $25 will be given for the best garden which is produced by June 1. The gardens are to be judged on five different points: 1—Percentage of ground used; 2—general appearance; 3—practicability; 4—general condition of the plants themselves, and 5—the assortment.

The employees by the rules of the contest must receive help from only one person in his immediate family, outside of the work entailed in plowing the ground.

In case employees do not have funds to purchase the seed Hart will furnish it, and will reimburse himself by paying market prices for the vegetables when they are ready for the market.

The contest is meeting a ready response and a spirited friendly rivalry is being shown.

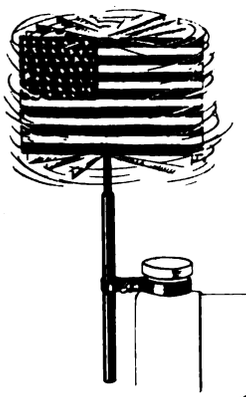
BUY LIBERTY BONDS

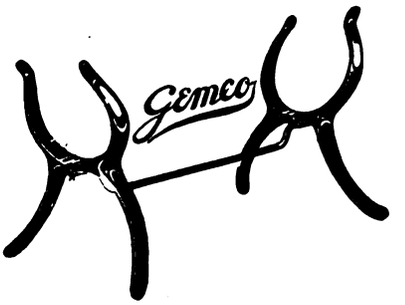
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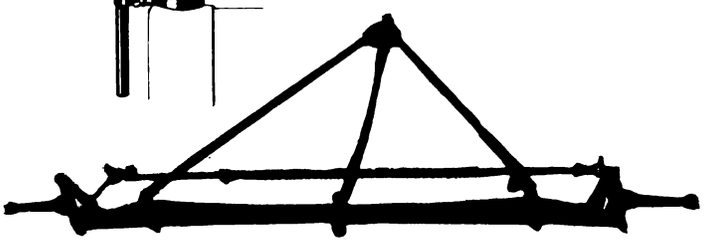
Accessories

REVOLVING AMERICAN FLAG

This is a radiator ornament, making use of an optical illusion so that the appearance is one of a full size flag unfurled, whether viewed from front, back or sides. The breeze causes the device to rotate. Constructed of sheet steel with metal stem revolving in tube on ball bearing. A holder to fasten to radiator cap is furnished, and when soiled the ornament can be cleaned. Price $1.—Reliable Safe & Lock Co., Inc., Covington, Ky.







GEMCO TIRE DISPLAY STAND

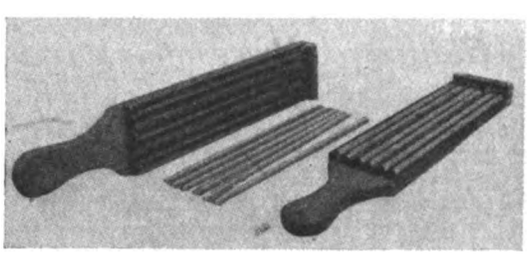
A black enameled and inexpensive stand holds tires in position in window displays. The two brackets which comprise the stand are hinged together, forming the jaws for holding the tire, allowing tires from 3 to 6 in. to be held. Weight 5½ lbs. Price $2.30, subject to dealer's discount.—Gemco Mfg. Co., Milwaukee.

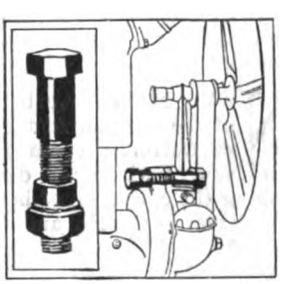
COMBINATION FORD DEVICE

"Hold 'Em in the Road" is a combination radius rod brace, anti-rattler, axle support and steering device for Fords. It stiffens the front radius rod by acting as a third member, the spring tension prevents the tie rods from rattling and the spring tends to keep the wheels straight.—Cooper Auto Supply Co., Thomasville, Ga.

PEERS BURNING LEAD MOLD

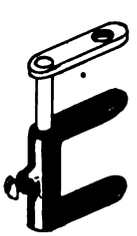
This device is used for saving lead from post drillings, old connecting straps and old plates and turning the metal into new burning lead. The molds are of sheet iron held in wooden handles which are protected by asbestos. There are six grooves and the bars turned out are 15 in. long, 5/16 in. thick, ⅜ in. wide at the top and ¼ in. wide at the bottom. Shipping weight 5 lbs. Price $2.25 per pair.—American Bureau of Engineering, Inc., 1018½ South Wabash Avenue, Chicago.





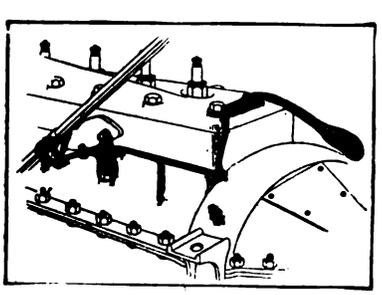
HUMBOLDT FAN BELT GUIDE

A device to keep a Ford fan belt in line with the pulleys. Attaches to bolt on front cover of engine and is adjustable by means of a set screw. Packed in standard cartons containing fifty pieces. Price 20 cents.—Humboldt Machine & Stamping Co., Long Island City, N. Y.



HUMBOLDT ADJUSTABLE FAN BOLT

A Ford fan bolt which consists of a special extra long bolt, lock nut, washer and bushing which fits in the place of the bolt regularly furnished with the Ford. It can be tightened as required, and is easily installed with the use of a wrench, no drilling being necessary. Packed in crates containing fifty sets, each set in an individual box. Price 50 cents.—Humboldt Machine & Stamping Co., Long Island City, N. Y.

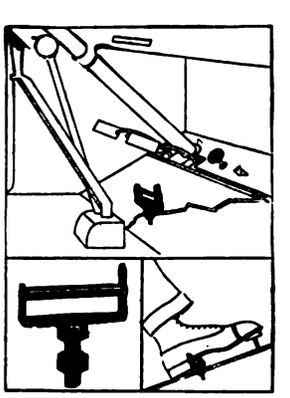


HUMBOLDT FOOT ACCELERATOR

A simple and easily attached foot accelerator for Fords. Can be quickly installed and floorboards can be removed without disturbing it. Does not interfere with the hand throttle. Price $1.—Humboldt Machine & Stamping Co., Long Island City, N. Y.

HUMBOLDT HEEL REST

A device to rest the heel when operating the foot throttle. Can be applied to any car by drilling a ½-in. hole in the floorboard. Made of cold-rolled steel, nickel finish, and packed in crates containing 25 pieces, each packed in an individual box. Price 75 cents.—Humboldt Machine & Stamping Co., Long Island City, N. Y.

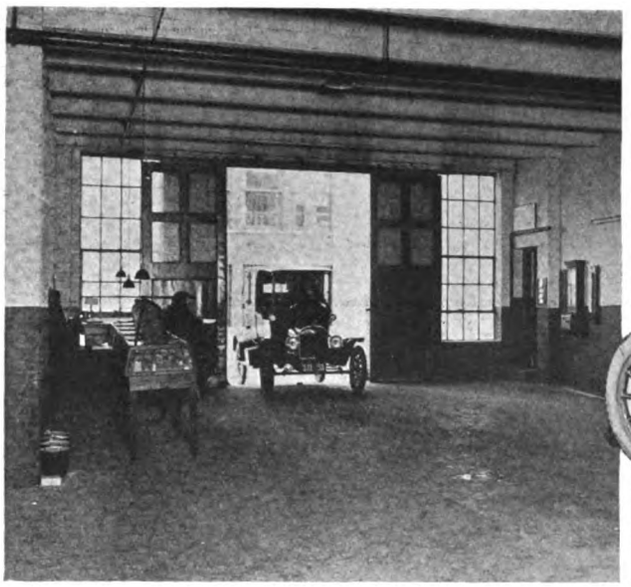


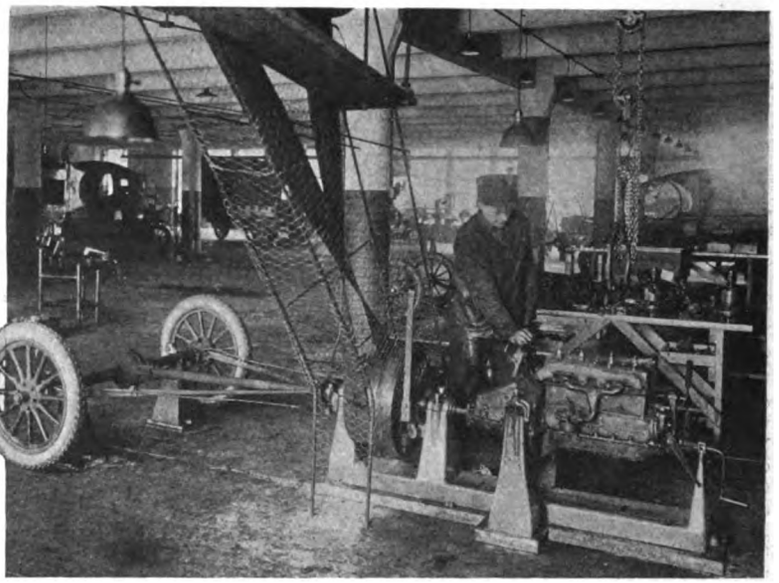
HOBART 2-KW. CHARGER

In the description of the 2-kw. 32 battery capacity charging outfit manufactured by Hobart Brothers Co., Troy, O., which appeared in the March 13 issue of Motor World, the price was given as $175. This, however, is the price of the ½-kw. outfit, the 2-kw. outfit selling for $57 cash and ten monthly payments of $30 each.

BUY LIBERTY BONDS

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The picture at the left shows a car coming in the door. That is as far as the owner takes it. Then it enters the shop system and is handled by specialists, one of whom is shown at the right operating one of the testing devices

Ford Methods Make Money for Dealer

Hollander Motors, Ltd., Imitates Its Daddy in Detroit and Has Standard Prices for Parts and Jobs

NEW YORK, April 17—Imitation of the methods of the Ford factory at Detroit are making money for one New York Ford dealer and are making the operation of business smooth. The dealer is the Hollander Motors, Ltd., and the methods are used mostly in the service station at 438 West 55th Street, a six-story fireproof building.

The station is one of "one-man-jobs." All of the shop employees are former Ford men, that is, they have previously worked either at the Detroit factory or at the assembling plant in Long Island City. Each man is an expert in the handling of all parts of Ford cars.

It is possible that a car coming to the service station for a complete overhaul passes through the hands of seven or eight men in the course of the completion of the work. A minor repair may call for the services of two or three men. Where it is necessary there are "rear axle" men, "front axle" men, "transmission" men, "motor" men, "motor testing" men, etc., each assigned to special work.

In this connection there is a distinction between "motor" and "motor testing" men, the former being experts on tearing down and assembling the Ford engine, while to the "motor testing" men get the jobs of putting the engines through their final paces before O.K.ing them.

While some garage and repairshop men may look upon this method as one of lost motion, it has been found to be the best system of handling quantity repair work of this kind. Special machinery has been installed and the hand tools also have been especially designed for high speed work on Ford cars.

The second floor of the new service station is devoted to the handling of motor and rear axle repair jobs. Just as soon as a car comes to this floor it is placed along the south end of the floor which is lighted by large windows. It is a comparatively simple matter for the engine to be detached from the chassis, gripped with special tongs and pushed, suspended from an overhead rail, to the motor disassembling stand—all the work of one man, the "motor" man. With special speed wrenches this man can do in about an hour what it would take close to four hours to complete with ordinary wrenches.

There are special stands for front and rear axles which are designed to facilitate work on these parts and in all cases the tools used by the workmen also have been especially made for this particular work. An arbor press will push out a bushing in half a minute, a job that it would take a man with a hammer and maul one hour to do. Another machine burns in a bearing with a saving of six hours in labor over the method used in the average repairshop. There is another machine for boring and reaming.

Road testing is a thing of the past as far as this station is concerned; testing machines make it possible to put the engine or rear axle through its paces before it is placed back in the car. The axle testing machine clearly brings to light any defect in the bearings or differential. There is also an engine testing block.

Valve grinding and other valve work are done by electric valve grinders which cut down by two-thirds the time of the hand job.

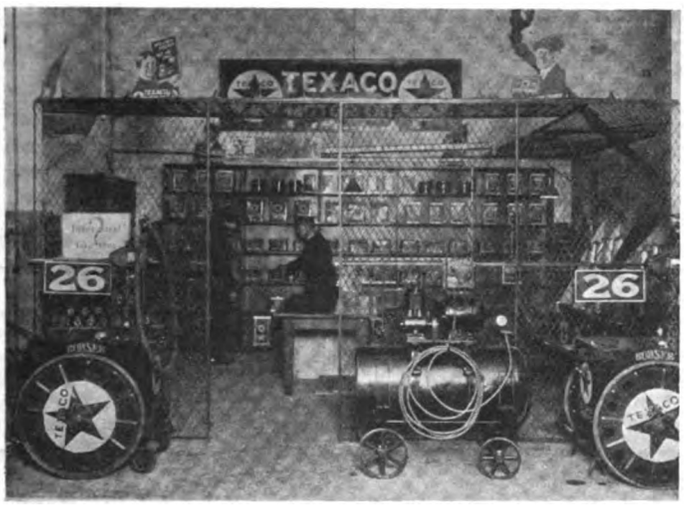
The big white brick building is six stories high and provides a floor space of 55,000 sq. ft., the first floor having 10,000 sq. ft. and the other five 9000 each. Every foot of the space that has been pressed into service at this date is being used to the best advantage. There is no lost motion in the completion of a repair job nor is there any space that is not fully utilized.

From the time that the owner of a Ford drives his car into the station for some minor adjustment or a complete overhaul until he drives it out again with the work completed every operation it passes through has been previously arranged for. The system of this station starts at the entrance, where the arrival of the car is recorded in a day book by a clerk stationed at the door. The owner turns his car over to the station at the door and there ends his worry about it being properly attended to. He is notified when it will be ready for his use and he can return knowing that it has come through the shop on schedule time.

On the main floor are the head tester and his two assistants who inspect every car that enters the establishment. When an owner brings his car in for repairs it is turned over to one of these three men, who inspects and tests it on the first floor. Before the owner leaves the premises the tester makes out on a repair order a detailed statement of the work necessary to put the car in good condition.

This order, which is made out in tripli-

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There is an oil room, shown at the left, and there are, but not shown here, stock rooms that are stocked on the Ford factory system. The picture at the right gives an idea of the building construction and how the shop looks

cate form, is signed by the owner. In the event that a chauffeur brings the car to the station, a copy of the order is sent to the owner accompanied by an authorization card, postal card size. No work is done on the job until this card is signed and returned to the service station by the owner. In this way possible disputes over authorization for the work in question are eliminated.

The third copy of the repair order is on a heavy stock card board, the left-hand edge of which is perforated and serves as a receipt for the owner. After the owner gets his receipt the remainder of the triplicate, containing the instructions, is placed in a celluloid faced leather envelope and attached to the car. It remains with the car until the entire job is finished. The obverse side of the original and duplicate of this order in addition to providing for the recording of details as to the owner's name and address, motor number, type, etc., of the car, carries the itemized charges for labor on the job. On the reverse side are recorded a description and the prices of all parts and materials used in the completion of the work.

Just as the actual mechanical work is standardized, so are the charges for labor and parts determined on a fixed schedule. The charges for parts, of course, are those that are published in the parts book issued by the Ford Motor Company. The labor operations have been studied so that it is possible to determine in advance just what it will cost for the repair of any part of a Ford car. These prices range from 75 cents for cleaning a gasoline line or fixing a tail light bracket to $25 for motor and transmission overhaul.

The original copy of the repair order is retained by the office, while the duplicate is the customer's copy. The latter has to be presented to the watchman at the door, who detaches a stub if the bill has been marked paid.

A complete check is kept on the number and class of parts required on each job. The main stock room on the second floor only carries at one time enough stock to carry it over for a short period, the supply being replenished regularly from the big stock room of the Hollander Motors, Ltd., at 1721 Broadway. The main and the auxiliary stock room in the service station are so arranged that all parts for which there is a heavier call are most readily reached. The stock is arranged in the order in which the various items are classified in the Ford parts book.

Before a repairman can obtain a new part for a car he is required to present the old part to the foreman. These parts are recorded on the repair order by the order and stock man. For sales of parts outside the repairshop a special type of order is used, made out in triplicate form, either for cash sales or charge accounts.

The first floor of the building is devoted to the testing department and for adjustments only. Here also is located, at the entrance, a completely stocked accessory department where all devices and attachments for Ford cars are handled. On the other side of the entrance is the Texas Oil Station, which is distinct from the service station management, but conducted for the convenience of its patrons. The service station itself has two 550-gallon gasoline tanks and the fuel is distributed throughout the building by the Allen pressure system. There also are six lines of compressed air leading to all floors.

On the second floor are the stock room, the ladies' waiting room and the manager's office. Also on this floor is the motor and rear axle repair department. On the sixth floor it is planned to establish an accessory department, wherein will be installed new accessories and the repair of old ones. Here also will be located the body and painting departments. Two large elevators, each capable of holding two cars at a time, are other features. The service station has a capacity for handling 100 jobs a day with a force of 75 men.

The manager is at all times in close touch with the work being done in the building and through a card system in which he records every repair job done he co-operates with the sales office in the sale of new cars. In this card file is kept a record of customer's name, address, telephone number as well as the work done on his car, the charges for the same, and the date upon which it was done. In this way it is possible for him to tell just about when a customer is likely to be in the market for a new car. This information is conveyed to the sales office and used as a lead for future sales. It also acts as a guide in the event of a complaint about the quality of the work done.

This unusual station precahes the gospel of true service—the elimination of serious and expensive repair jobs through the owner giving proper attention to the adjustment of his car and to the quick repair of minor troubles. All of its customers are encouraged to send their cars to the station every week or so for inspection and adjustment. There is no charge for this service and in the letters that are sent to owners urging them to take advantage of these regular visits it is emphasized that this work will only require a few minutes.

The dealer runs a service car that helps out owners



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Finding What It Costs to Make a Sale

The Renstrom Company Goes Into Its Figures in an Analytic Way and Knows Just What Sales and Salesmen Show Greatest Profits

THE Frank O. Renstrom Co., which sells the Grant and Nash in San Francisco, has worked out a sales analysis plan that tells it everything it ought to know about its sales.

The forms shown here are used in the plan. A salesman's prospect, in order to qualify as a prospect, must be turned in on a report sheet, shown on this page, and all the data required must be filled in so far as possible. If, in the judgment of Sales Manager A. M. Field, this report is strong enough to show that the salesman has an intelligent grasp of the situation as regards the prospect, the prospect is placed on the prospect map and accredited to the salesman.

Each of the questions asked on these blanks is of vital importance at some point in the sale, and are frequently of great value when the sale has hung fire for some time.

After each visit the salesman is required to fill in the result of his visit, each of which must show some constructive work. Useless calls are not tolerated. The assistant sales manager makes notations at the bottom of the report, and these are of great assistance.

On the back of the card, shown on the opposite page, the costs are recorded. These are entered after each demonstration, and if the sale is not made, these costs go under a net loss balance, and at the end of the month influence the net result of the salesman's work reduced to dollars and cents. These figures tell whether a salesman is a source of profit or loss.

At the end of the month the assistant sales manager makes out a report, showing how many calls each man has made, how many first calls, how many second calls, how many third calls, and how many fourth calls. A recapitulation sheet accompanies the report, showing the total calls for each salesman, the cost of demonstrations, the number of cars sold, commissions paid, profit on cars sold, cost on cars sold, net loss and net profit and balance.

The salesman's efforts are thus reduced to FACTS, and it all works out automatically with little care after the salesmen are familiar with the system.

The retail sales department is in charge of two men, one in charge of trucks and the other passenger cars. All reports go to these two managers, who are as fully posted on each sale as the salesman himself.

The work of the salesmen is visualized by use of a city map. On this each salesman's prospects are represented by tacks of a different color and different colors represent the salesman's progress with the prospect.

Thus: One salesman has a yellow solid color for his prospects. After the sale has progressed sufficiently well, this tack is exchanged for a yellow tack with a white dotted head. Further progress brings a yellow tack with a white dash, and when the sale is made, a yellow tack with a white cross is used. This remains permanently on the map. A glance at the map shows by the predominance of colors and characters the work of each man.

REPORT.

Name Wm. P. Smith Business Furniture Date Aug. 2-16
Business Address 722 Market Street Phone Park 2765
Home Address 1426 Valencia Street Phone Sutter 3321

FINANCES

Real Estate ____ Incumbrance ____
Personal Property ____ Rating O.K.

PROSPECT FOR

A light 5 passenger car Cash Part Trade Part Time Part
Now owns Detroiter Which he wants to trade in
We offered to sell his car
He Offered trade in at $350.00

HIS CAR

Brand Detroiter Motor knocks and low power
Transmission gears and bearings good for service
Axle Left drive shaft bent Paint Fair
Tires New L. F. Good R. F. New Firestone L. R. Goodyear O.K. R. R.
Equipment Electric lights, power horn Top Poor lining
His valuation $350.00 Our valuation $250.00
Might be sold, ####### to Mr. J. Bernstein, 1527 Valencia Street.

INFLUENCE

Competitor Smith 59 Favors it because appearance and room
Is influenced by friend—mechanic Must Please his wife particularly
Disposition very agreeable but evasive Origin call in salesroom

VISITS

Date		
Aug 5	I Called with car	Report Gave short demonstration. He insists we take his car in at $350.00.
	He Called with friend	Report Looked car over in detail. Friend well impressed but favors used car.
	I Called on friend.	Report Had long talk. Let him drive. Think I have him. He will see Smith tomorrow.
	I Called on Mrs. Smith	Report She is converted but clutch and brake pedals too long. Needs extensions.
	I Called on Mrs. Smith.	Report These new extensions and rubber pads suit exactly. Will see them both tonight.
	I Called.	Report Friend had evidently boosted to good effect and Mrs. Smith likes the car but insists we take his car ### in trade. So took #### his order subject to acceptance we take his car at $275.00.
	He Called in to see	Report Trade at $275.00 refused by house. He finally agreed we take his car at $250.00. Understanding if we sell ### for more in 10 days#### to credit difference to him.
	Call	Report

REMARKS

The key to this sale will be to satisfy his wife and sell his mechanical friend.

The form at the left is the prospect card of the Frank O. Renstrom Co., which sells the Grant and Nash in San Francisco. It covers accurately each prospect, all the work done on him, all the facts regarding him and tells the story of the calls that have been made on him

Wooden Bells Save His Nerves

Did the jangling of telephone bells ever get on your nerves, especially when the bells were right beside you, not more than two feet away?

If they did, try the stunt of C. P. Rockwell, the Nash distributer in Boston, who put on a pair of wooden bells. They are solid blocks of wood, shaped like bells. He says the telephone company sells them.

They make a click like a modest telegraph instrument and are a real office comfort.

Michigan School Adds Trucks

DETROIT, April 15—The Michigan Automobile School, which has been specializing in passenger car construction and repairing for the past seven years, has now added a thoroughly equipped truck department. The Federal, Signal, GMC, Maxwell and Ford are numbered in their fleet of trucks.

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Here's a Worthy Curtailment Idea

Taber's Salesmen Will Make Their Calls in Used Cars, Thus Saving the New Ones for Demonstration

THERE will be fewer new demonstrating cars freely used by Hartford (Conn.) salesmen this season. Russell P. Taber, Inc., Reo distributer, will hereafter send his men out to call in used Reos and when prospects desire demonstrations they will be arranged for in new cars. The cost of up-keep for demonstrators, including all expenses, was in the neighborhood of $6,000 with Taber last season. It will not be as much this season. All Overland salesmen have to use their own cars in making calls. The prospects are brought to the down town salesroom and given demonstrations in the cars that most appeal to them. The salesman has to have a requisition for the car and has to render a report on his return as to where he has been together with other information in reference to the demonstration. This arrangement while not necessarily pleasing to the salesmen, does, it is claimed, result very satisfactorily to the company.

Hartford Dealers Drive Cars Home

HARTFORD, April 15—Brown, Thomson & Co., Hartford County Cadillac distributers, are now running cars over the road from Cleveland pending improvement of the freight situation. Cars are shipped by boat from Detroit to Cleveland. The run to Hartford from Cleveland is approximately 600 miles. The trip requires three days.

The Elmer Automobile Co. is getting cars from the Long Island City Ford branch and running them over the road to Hartford. A crew is sent down on the 6.57 a. m. train and is usually back home in the evening. The Harry Starkie Auto Co. is running Chevrolets over the road this week and The Colonial Automobile Co. has received the Studebaker light sixes in the same manner.

Tulsa Has Trade Meeting

TULSA, OKLA., April 11—The Tulsa Motor Car Dealers' Association held a meeting April 5, attended by many dealers from Muskogee, Oklahoma City and other Oklahoma centers, and was addressed by E. E. Peake, Kansas City, on "The Old Order Changeth." There were 150 dealers present.

Hartford Wants Used Cars

HARTFORD, April 15—The used car market is quite lively at the present time. Inquiry of various Hartford dealers reveals that most of them have better stock of used cars than at any time this season. The automobile show is said to have aroused more than usual interest. Fords sell on sight and but few of them are on the market. Buicks command a good price and Cadillacs are scarce, while Chevrolets are on the waiting list. Time payments figure prominently in sales. The outlook for the sale of used cars of all makes, is, it is asserted by the dealers, better than at the same time in any previous year.

Auction Hal Assets

CHICAGO, April 13—The entire stock of supplies, accessories, machinery, furniture and ten finished cars formerly belonging to the Hal Motor Car Co., Cleveland, will be auctioned by Samuel L. Winternitz & Co., Chicago auctioneers, at Cleveland, April 26. The inventory value of the concern is given as over $200,000.

Harroun Is Awarded War Order

WAYNE, MICH., April 11—The Harroun Motors Corp. has received an order for a large quantity of 155 mm. shells, and is now installing $500,000 worth of new machinery to produce them. Vice-president Ray Harroun is devoting a major share of his personal attention to the consequent revision of plant arrangement, a step which is being taken without interrupting the regular automobile production.

Ogden Looks For Prosperity

OGDEN, UTAH, April 12—The local automobile show closed to-night. This is the fifth annual show held here. Forty dealers from Salt Lake, Ogden and neighboring cities in Utah took part. This section of Utah looks prosperous for the year as the beet growers will get $10 a ton for their product and the labor shortage will be met by automatic machinery which will cut out hand labor in topping beets. An oil boom is also well started and will lead to plenty of sales in tractors for hauling supplies.



?

Anyway, what do you do on rainy Saturdays and during dull hours when time hangs heavy?

All preliminary to a very serious thought—keep posted in your business of being an automobile dealer by finding time for study and improvement.

Are you reading the automobile trade papers regularly?

There is mighty good stuff in them these days.

Alfred Reeves, in a recent talk in Chicago, referred particularly to MOTOR WORLD as a weekly fund of information of great practical benefit to dealers.—*Allen Sales Bulletin*, Allen Motor Car Co., Fostoria, Ohio.

St. Louis Writes Its Slate

ST. LOUIS, MO., April 15—The Motor Accessory Trade Association has made the following nominations for the election next month:

President—John F. Shuford and A. C. Bauer.

Vice-president—William L. Ferrier and Louis Moller, Jr.

Treasurer—A. R. Baxter and W. E. Moerschell.

Sergeant at arms—William D. Clark.

Directors (five to be elected)—E. S. Marvin, W. L. Patterson, E. C. Bartholemew, T. F. Wood, L. E. Allmon, W. F. A. Uhlenhaut L. A. Safford, J. O. Tinsley, William Malone, Jr., R. G. McCurdy.

The meeting heard several patriotic talks, among which was a description by Walter C. Hecker of the Curtis Manufacturing Co., of the making of small shells by that company and some of the improvements made since the war began.

Canadian Imports $8,000,000

MONTREAL, April 12—According to the Canadian department of customs report for the fiscal year 1917, the total importations of automobiles for the fiscal year included 12,037 cars, valued at nearly $8,000,000, or $1 per head for the population of Canada. There was almost as large a sum spent in the importation of parts, but these were largely for the manufacture of new automobiles in Canada—a Canadian industry. If the importation of entire passenger automobiles were prohibited outright, Canada would lose nearly $3,000,000 in duty. The figures for 1917 follow:

	Value	Duty
Passenger automobiles..	$7,981,177	$2,790,256
Freight automobiles	423,824	148,338
Motorcycles, etc.....	177,621	62,071
Motor vehicles, parts...	7,200,017	2,171,723

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Wanted—Better Highways

U. S. Chamber of Commerce Urges Need For Good Roads To Help Relieve Railroad Congestion

CHICAGO, April 12—The business men of America went on record yesterday as favoring the adoption of a permanent policy assuring co-ordination of railroads, water rents and highways. They also urged that trunk highways for heavy traffic be immediately completed where they can be useful for relieving railroad congestion.

These two resolutions, were the outcome of a day's discussion of the railroad and highways transportation situation by the United States Chamber of Commerce, at its sixth annual meeting, which ended here to-day. Representing as it does, the organized business interests of this country, the findings of the U. S. Chamber of Commerce carry utmost weight.

Yesterday's session on the transportation situation was divided into two sections: One of them was devoted chiefly to the railroad situation, under the leadership of Harry A. Wheeler, chairman of the committee on railroads of the Chamber of Commerce, and consisted of papers by Alba G. Johnson, president of the Baldwin Locomotive Works, on "Motive Power;" John F. Wallace, chairman of the Chicago Railway Terminal Commission, on "Terminals," and by Samuel O. Dunn, editor, *Railway Age*, on "Car Supply," as well as a talk entitled "Extensions" by Francis H. Sisson, vice-president of the Guaranty Trust Co., New York. It was as a result of the discussion of these, and particularly Mr. Sisson's paper, showing the need of greater inter-relation between our three main transport facilities, the railroad, the waterways and the highways, that the resolution on that subject was made.

Session For Highway Hauling

Highway transportation had a special session, under the leadership of F. A. Seiberling, president of the Goodyear Tire & Rubber Co. and president of the Lincoln Highway association. The meeting was addressed by Roy Chapin, chairman of the Highways Transport committee, Council of National Defense; A. C. Bedford, president of the Standard Oil Co. of New Jersey and chairman of the Petroleum War Service committee, and Secretary Shirley, of the Highways Industries Association, formerly State Highway Engineer of Maryland.

Aside from the resolution advocating a central control of highway policy, the biggest outcome of that meeting was the suggestion by Mr. Bedford that while the production of gasoline so far has been sufficient for all needs, it might be possible, through government action, to limit the supply of motor fuels for passenger car use. He did not say this in so many words, but his attitude seems to have changed somewhat from that of a few weeks ago when he publicly announced that there was no prospect of any necessity of limiting the supply of motor fuel. His statement yesterday was couched in these terms:

"I am hopeful that there will be sufficient gasoline available to provide for all commercial as well as passenger vehicles in operation during 1918. Even should there be a shortage of gasoline, the development of the truck should not be retarded, even though it should become necessary to place restrictions on the use of gasoline by passenger vehicles.

"I must again earnestly urge upon every consumer of gasoline the imperative necessity of conservation. When in July of last year I issued a statement upon behalf of the Council of National Defense, I said, 'People should look upon their automobiles as necessities to be used only when needed. Not a gallon of gasoline should be used in the present emergency except for some useful thing.'

"Gentlemen, the warning is more than ever necessary now. The conservation of gasoline may no longer be a matter of choice. It may become necessary to set down definite and drastic regulations to restrict needless consumption of such essential products."

In opening the meeting on Highway transportation, Chairman Seiberling recalled that for a number of years, the tonnage carried over our railroads had doubled each decade, while the additional mileage had decreased, to only 76 mi. per year.

The motor truck sounds the death knell of short line railroads, because it provides its own terminal facilities. The motor truck takes the freight at the point of origin, and delivers it at the door of the consignee.

Hard-surfaced highways capable of carrying the new burden by motor trucks which the railways cannot handle, are a necessity. Of our 2,500,000 mi. of highways, only 10 per cent have been improved, and not all of that improved is capable of carrying trucks all the year round. We are coming to a period of highways with permanent surface, wider track and open to traffic 365 days in the year.

There are over 400,000 motor trucks in service in the country to-day. By the end of the war, we will have 4,000,000 in service. The postal department shows a deficit of $3,000,000 in its parcel post. Through the rapid introduction of motor post, this deficit will be converted into a profit, when well-surfaced highways have been extended. In good time, our great task on the other side will be completed, and we must think of activity after the war, and plan for a sound, safe program of highway development.

Roy Chapin told of the governmental recognition of the fact that the highways must play their part through the establishment of the Highways Transport committee of the Council of National Defense, outlined the systems of inter-city motor transports in this country and in England, told of its rapid recent development, of the return loads bureau, of the methods of handling freight terminal congestion by motor truck, etc.

Mr. Shirley explained how the city of Baltimore, through its organization of business men, had overcome the terminal freight congestion in that city, by using the motor truck for short hauls, by unloading the cars in the yards into trucks, instead of at the terminals, etc.

The consideration of highways and railroad transportation is only one of a number of different angles that were taken up by the United States Chamber of Commerce. The shipbuilding situation occupied a great deal of thought of the business men. Likewise, did the consideration of the relation between industries and war work. The finance during war times was given much discussion. Trade acceptances were the subject of a whole day's consideration by one section of the meeting. The convention was addressed by such men as Secretary of the Interior Lane; Secretary of the Navy, Daniels; Hon. Edward M. Hurley, chairman of the United States shipping board; Charles A. Hinch, president of the American Bankers' Association, and others.

Harry A. Wheeler, food administrator for Illinois, was elected president of the Chamber of Commerce. Mr. Wheeler was the first president of the chamber and was re-elected at the suggestion of Joseph H. De Frees of Chicago, who at the same time was re-elected to his position as vice-president for the north central states. With few exceptions all the old officers were re-elected.

Washes His Cellar Once a Week

H. W. SKINNER, of the H. W. Skinner Motor Car Co., Utica, selling the Dodge and Packard, found that his basement became dusty from his heating plant. He now flushes the entire floor, ceiling and side walls and everything else in sight with a hose once a week. The first time he did this it created a lot of mud, but future washings developed little muddiness and the cellar is now in the best of condition at all times.

Republic Trucks Changes Personnel

ALMA, MICH., April 15—The Republic Motor Truck Co. has made several changes in its personnel: M. E. Holmes, general sales manager, has resigned; F. W. Gargott, advertising manager, and Cecil Taylor, chief engineer, have also tendered their resignations. C. A. Miller, assistant general sales manager, has taken Holmes' place.

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Tractor Demonstration Scheduled for South

Each Congressional District in Georgia to Have Two-Day Test — Auspices of State

ALBANY, GA., April 15—A series of tractor demonstrations, the first of which will be held at Albany, Ga., May 7 and 8, has been arranged for by the State Council of Defense of Georgia. It is planned to give a demonstration in each of the congressional districts of the state. Each demonstration will continue for two days, the first day being devoted to plowing with a demonstration of night work with search lights, and the second day to the final preparation of the seed bed.

Olds Eight to Cost More

NEW YORK, April 15—The Olds Motor Works, Lansing, will on May 1 increase the price of its eight-cylinder open models. The present price is $1,495; this will be increased to $1,550. Prices of six-cylinder models probably will remain unchanged, the open models listing at $1,195, the coupe at $1,595 and the sedan at $1,695.

Ask Aid for Roads

LITTLE ROCK, ARK., April 15—Need of federal recognition of immediate necessity of highway improvement in this country as a war measure will be the message of the United States Good Roads Association convention here this week if the opening session this afternoon is a criterion. In extending the welcome of his State to the delegates, Governor C. H. Brough of Arkansas voiced the sentiment of the 225 delegates from 21 States when he asked the convention to send to President Wilson and Director General McAdoo a resolution asking the Federal Reserve Board to approve at once necessary bond issues for the improvement of all the national highways, as all are of immediate importance to our prosecution of the war.

He pointed out that the first 10 miles of the journey of a ton of grain to the trenches is as important as the last 10. The convention will be in session to-day, to-morrow and Wednesday and will be addressed by Senator Bankhead, its president and father of the Federal Reserve Board and State Highway Engineers. Thursday and Friday will see a convention of the Bankhead National Highway Association which is boosting a transcontinental highway through the Southern States.



GEORGE FRITZ
Field Secretary of the National Association of Automobile Accessory Jobbers

Peoria Chooses Directors

PEORIA, ILL., April 16—The Peoria Automobile and Accessory Dealers Association has chosen directors for the coming year. They are: Theodore Bass, National E. & A. Supply Co.; Robert Fitch, Fitch Auto Supply Co.; W. E. Johnston, Johnston-Moody Co. It is planned to invite women to the monthly gatherings of the organization.

Chicago to Beat Quota

CHICAGO, April 15—The third Liberty Loan campaign of the Chicago Automobile Trade Association shows every indication of surpassing the mark of the second, and already over $500,000 has been subscribed by motor car dealers, employees, garage men, motor cycle men, etc. Twenty-five salesmen are calling on 450 garage men, the same number of liverymen and some 800 other concerns representing the industry. The association is providing speakers with its salesmen who work singly, in pairs, or in groups should the concern called upon employ several hundred persons.

Would License Tractors

HARTFORD, CONN., April 15—Increasing use of tractors in the state of Connecticut has convinced Robbins B. Stockel, commissioner of motor vehicles, of the necessity of a special form of license permitting operation over the state roads. The commissioner now has the matter under advisement, but has not decided just what form of license will be issued but will make a decision within the next few days.

Chicago Used Car Men Propose Organization

To Form Division Under Auspices of Trade Association—Would Work for Better Conditions

CHICAGO, April 15—The used car managers of the Chicago dealers, who held an informal dinner meeting Saturday night of the recent exchanged car show, met this evening at Kuntz-Remmler's to consider permanent organization. They decided to form the Chicago Automobile Trade Association Technical Committee provided the move is endorsed by the parent body. This organization would meet regularly and discuss used car questions and assist the dealers in arriving at better used car conditions. If the plan is approved the organization will be perfected and officers elected at a meeting April 29.

Reliance Completes Organization

APPLETON, WIS., April 13—The Reliance Motor Truck Co., formerly the Racine Motor Truck Co., Racine, Wis., has completed the reorganization of its board of directors to provide representation for new capital entering the concern since its removal to Appleton, Wis., where a large factory is now nearing completion. Ira L. Miller continues as president and general manager. A. K. Ellis has been elected vice-president; Thomas M. Purtell, secretary-treasurer, and F. W. Grogan, G. P. McGillan, W. Harvey Kelly and George B. Barlow, directors. The new plant, which will cost about $100,000 complete, is expected to be under roof by May 1, and actual production will commence June 1.

Studebaker Prices Increased

DETROIT, April 15—The Studebaker Corp. increased the factory prices of its models to-day as follows:

Model	New Price	Old Price
4-cylinder:		
Touring	$995	$895
6-cylinder:		
Light touring	1,395	1,295
Big Six touring	1,795	1,695
4-pass. roadster	1,550	1,450
Chassis	1,295	1,200

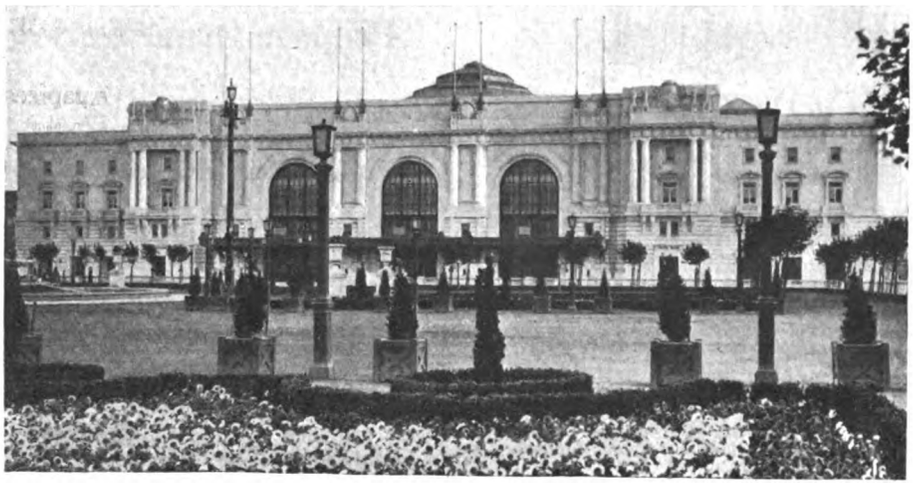
Shelby Starts Production

SHELBY, OHIO, April 15—The Shelby Tractor & Truck Co., formerly the Standard Mfg. Co., has started production on a ¾-ton truck and a two-plow tractor. The company has been experimenting and developing these models for 2 years.

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Not many show managers are fortunate enough to get a building as beautiful as this one which housed the Portland, Ore., show. The lower picture shows a part of the truck exhibit

Plenty of Rubber Is Coming Into Country

But Transportation Overland Is Causing Some Worry—Imports Steadily Increase

NEW YORK, April 15—More rubber arrived in the United States during the first three months of 1918 than in the same period of 1917; the exact increase was 4779 tons. There have been some difficulties with transportation, however, which may have caused the circulation of rumors, not based on fact, that there exists a shortage of rubber.

During the first three months of 1917, imports of rubber totaled 41,574 tons as against 46,453 tons for the first three months of 1918. January and February both show substantial increases over the same months last year, though imports fell off slightly in March. Following are the statistics, as compiled by the Rubber Association of America:

Month	1917, Tons	1918, Tons
January	12,788	16,084
February	10,162	13,108
March	18,624	17,161
Total	41,574	46,353

During the entire year of 1917 a total of 167,062 tons of rubber was imported. This represents an increase of 43 per cent over the importations for the year 1916.

Although there is plenty of rubber coming into the country, its transportation in the United States is causing slight worry. Most of the Akron rubber mills, for example, receive their shipments of rubber at a Pacific Coast port of entry. This means shipment across the continent by freight and it is here that the delay occurs. It is stated that it is not uncommon for shipments to be en route for two or three months and in one case a shipment which left the Pacific Coast last November has not yet reached its destination. It is hoped that some of the transportation troubles will be smoothed away with the coming of better weather.

Select Landing Places for Airplane Mail Route

Belmont Park, Long Island, to Be Terminal in Washington-New York Service

WASHINGTON, April 12—The three landing places for aero mail service between Washington and New York have been selected. The fields are being prepared and hangars erected speedily. The service will be in operation not later than May 15, and possibly much sooner. The three landing fields selected are: Potomac Park, Washington; Bustleton, North Philadelphia; Belmont Park, New York. The hangars at Potomac Park are in course of construction, and will be soon started also at Bustleton and Belmont Park. Extensive rolling and grading of the Philadelphia field will be done this month.

Assuming that the airplanes leave New York at noon for Washington and leave at the same hour from Washington for New York, rail connection for destinations beyond these cities and Philadelphia will be made which would otherwise be impossible. This plan is going to be placed in operation.

In addition to saving much time in the delivery of letters addressed to New York, Philadelphia and Washington, there will be considerable time saved through making these connections for earlier trains beyond the terminals.

An airplane leaving New York at 12 o'clock noon, arriving at Philadelphia at 1:30 and at Washington at 3:30, will make connection with trains several hours earlier than present connection for many cities in New Jersey, Pennsylvania, Delaware and Maryland.

At the same time the mail reaching Washington at 3:30 will make connection with numerous trains leaving Washington at 4 o'clock for many points in the South and Southwest. The post office estimates that at least 8 hours will be saved by the airplane route.

The airplanes leaving Washington on the noon schedule will arrive at New York at 3:30, and their mail will be delivered in New York in the late afternoon city delivery over the entire city. To make this delivery by train letters now have to be mailed at the railroad terminal in Washington before 9 a. m.

Olds Delivers by Trolley

LANSING, MICH., April 12—The Olds Motor Works is shipping cars out by trolley, using the lines of the Michigan Railways Co. By these means the company reaches Detroit in one direction and Kalamazoo in the other, thus much facilitating the prompt movement of its product. As the cars of the Michigan

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Railways Company are short, a strong stanchion is erected about one-third of the length of the car from one end, and upon this the front wheels of one automobile are elevated. Two additional automobiles then are loaded on the bed of the flat, the middle car extending underneath the one elevated on the stanchion. By the employment of this ingenious contrivance the Olds company succeeds in loading three automobiles on the trolley flats.

Vesper to Address Dealers

COLUMBUS, OHIO, April 15—F. W. A. Vesper of St. Louis, president of the National Automobile Dealers' Association, will be the principal speaker at a special meeting of the Columbus Automobile Trade Association, scheduled to be held at the Chittenden Hotel, Columbus, April 23. He will talk on "The Dealer in the War." Secretary of State Fulton will also speak on "The State's Interest in the Automobile Business."

Ford Two-Man Tank Puts In Appearance

Will Travel 12 M.P.H., Carry Two Men and Two Machine Guns—Three Building

NEW YORK, April 10—The first model of what is understood to be the Ford "Two-man Tank," numbers of which will be produced by the Ford Motor Co. if tests prove satisfactory, was revealed to public gaze at Springfield, Mass., yesterday and is illustrated herewith. Experimental work on the tank has been progressing for some time under the supervision of C. H. Martin of the Martin Rocking Fifth Wheel Co., Springfield, its inventor, and it is understood that three machines are now being constructed for the Ordnance Department and Quartermaster Corps, and will be tested by these divisions.

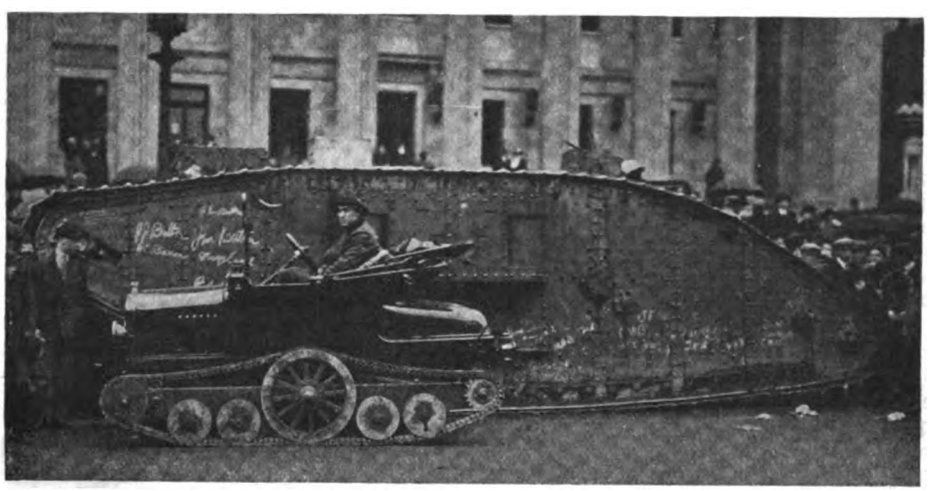
Neither armor nor armament is shown and it is understood that details have not been decided as yet. It is likely, however, that the tank when in fighting trim will carry about 1200 lb. of armor and two machine guns. It is to be manned by two men and its speed will be about 12 m.p.h. on smooth going, and slightly less on rough going.

In construction, all the essential elements of the Ford chassis are retained with the exception of the running gear. In place of wheels there are two endless belts running over a series of idler pulleys and driven through sprockets which in turn are driven off the Ford rear axle. The method of steering and other details are not disclosed.

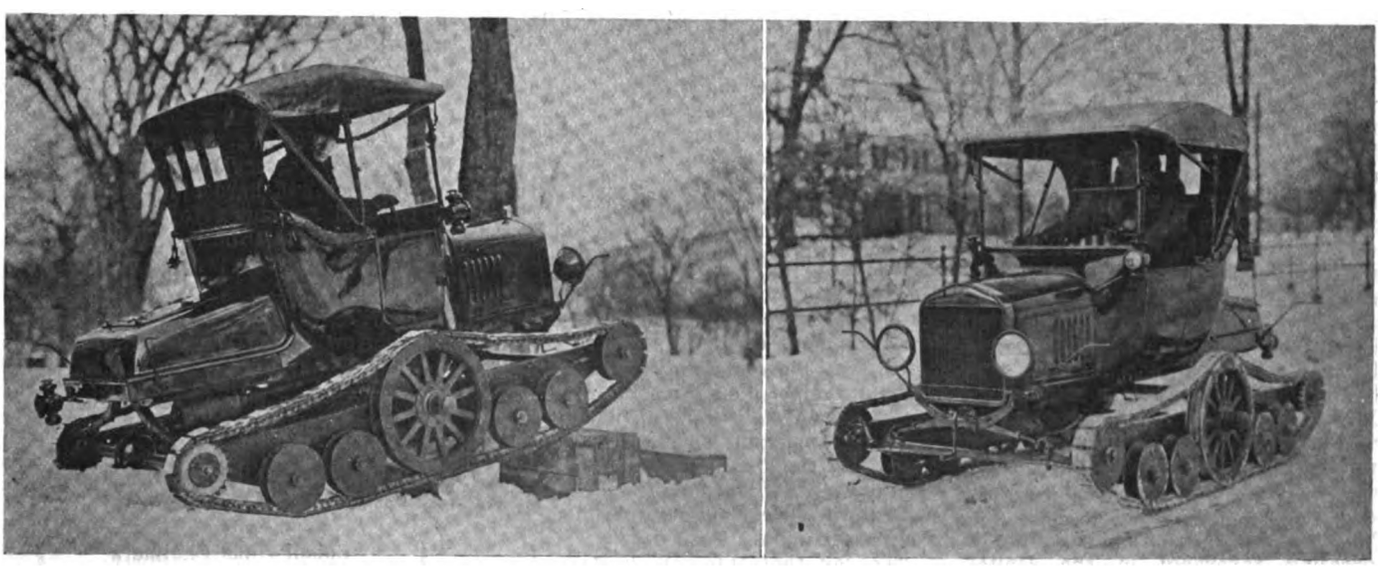
It is stated that the little tank will do practically anything its big brother will do in the way of climbing obstacles in proportion to its size and that it will successfully negotiate almost any kind of bad going.

Louisville Dealers Incorporate

LOUISVILLE, April 12—With a view of better promoting the motor car industry, the Louisville Automobile Dealers' Association has filed articles of incorporation, with a capital stock of $7,500. The incorporators are Prince Wells, W. A. Thomas and P. S. Longest. The organization has been in existence for many years and ten exhibitions have been held under the auspices of the association.



The Ford "Two-Man Tank" retains all the essential elements of the Ford chassis except the running gear, which is replaced by two endless belts driven from sprockets from the Ford rear axle



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THE TEXAS AUTOMOBILE DEALERS' ASSOCIATION recently held a convention in San Antonio. It took up various trade matters and, in addition, endorsed the National Automobile Dealers' Association at the request of President F. W. A. Vesper, of St. Louis. Vesper is the man in the circle in the center of the group

Urge One Head for Aviation

Senate Committee Says Lack of Centralized Authority Is Holding Up Program

WASHINGTON, April 12—The Senate Military Affairs Committee, which has been investigating the delay in the aviation program, last week made public the report of its findings. The report states that the delay has been due to "ignorance of the art and to failure to organize effort in such a way as to centralize authority and bring about quick decisions."

In consequence, the committee has recommended that entire production plans be divorced from the supervision of the Signal Corps and placed in the hands of a single responsible executive.

Official data filed with the report state that three foreign engines, the Gnome, La Rhone and the Hispana-Suiza, are being manufactured here, that 965 have been completed and are being used for advance training.

Five Combat Types

Five types of combat machines have been adopted at different times. Of these two have been abandoned and the three which are now being made are: The Handley-Page, to carry six men and eight machine guns and a very heavy load of bombs, and to be driven by two Liberty engines; the De Haviland, to carry two men, four machine guns and a moderate bomb load, to be driven by one Liberty engine, and the Bristol, which is the lightest and fastest, and will carry two men, one machine gun and be driven by one Liberty engine.

The report states that 22,500 Liberty engines have been ordered; 122 have been completed for the army and 142 for the navy. Four engines have been shipped abroad.

The training of American aviators is progressing favorably in the United States. Last year some 1200 cadets were sent to England, France and Italy to receive training, but inasmuch as there has been delay in providing them with training planes, the Signal Corps is seriously considering the advisability of bringing them back here to be trained. Of the 1200 sent abroad, 450 are reported as having completed the primary training.

At the time of filing the report, a minority report was also filed, and this, in addition to stating that the progress made to date, if not entirely satisfactory, is at least praiseworthy, goes into great detail in reciting the obstacles which had to be overcome.

For example, it is pointed out that when war broke out, the United States Government had purchased altogether less than 200 airplanes in its entire history, and that of the few airplane factories in the country probably not one was making over five or six a month.

The report says, "It is hardly possible to grasp the magnitude of the task, the factories, contracting to make the 11,500 combat planes, found before them. New plants had been constructed, old ones fundamentally changed, special tools for the making of the planes had to be devised and manufactured, and mechanics had to be trained to make the tools and also to make the planes after the tools had been completed."

What a Plane Carries

Some idea of the intricate construction of a modern battle plane is indicated by the equipment which it carries. The report says, "every fighting plane must have machine guns, synchronizing devices, special telescope airplane sights, wireless apparatus, cameras of special type, electric heating devices for clothing, oxygen apparatus, altometers, speed indicators, special gages, chronometers, compasses and so forth.

"To say that this complicated equipment is in steady and adequate production," says the report, "and that the factories are now about in shape for quantity production of combat planes, and have about completed the foundation of what is as difficult and responsible a task as has ever fallen to the brain of man, is to state the truth and at the same time to recite an achievement unparalleled in all history for so short a time."

St. Louis After Car Thieves

ST. LOUIS, April 15—The vigilance committee, composed of members of automobile and business institutions to stop motor car thefts, has decided that it will recommend a much more drastic law be passed by the legislature in January. The Missouri law is very weak, compared with other states, says Frank R. Tate, Dodge distributer, who is chairman of the committee.

The committee is planning to have the cases of thieves more closely watched while passing through the courts and after conviction, as it is openly charged that the thieves have so strong protection that real punishment is only seldom administered.

Cleveland Production 10,000 Tractors

CLEVELAND, April 12—The Cleveland Tractor Co. anticipates a production of 10,000 machines during the present year. The first Cleveland tractor was produced in the fall of 1916, and in January, 1917, began the manufacture of them in a building, 60 x 250 ft. An addition, 60 by 300 ft., was erected during 1917; a new factory building, 60 by 460 ft.; a boiler and hardening room, 80 by 90 ft., and an annex to this of 90 by 200 ft., were also built. The company made 1032 tractors from April to Dec. 31, 1917.

New Dodge Business Car

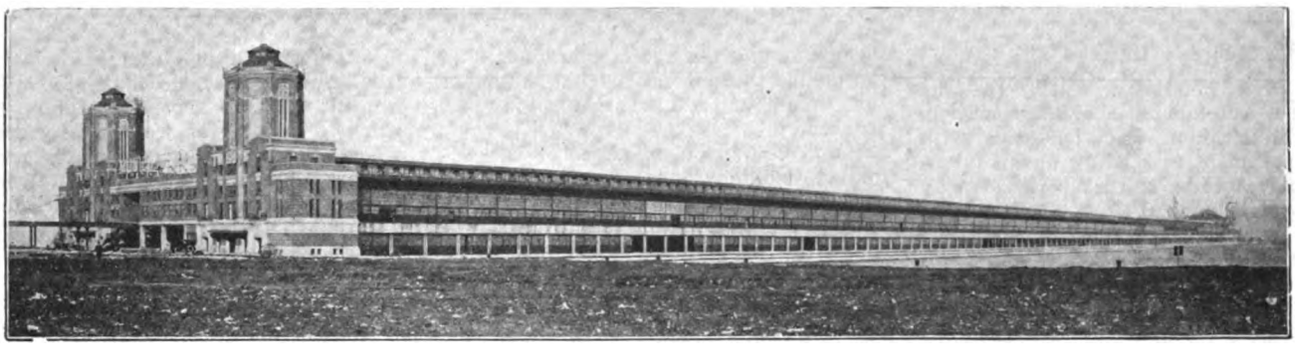
DETROIT, April 13—Dodge Brothers is putting out a new panel business car which will sell for $935. Dealers have already been supplied with sample cars, and production will be increasing from day to day.

Lobell Adds Chalmers

NEW YORK, April 15—The Lobell-Aborn Co., which for the past two years has been handling the used-car department for the Maxwell Motor Sales Corp., has taken over also the used-car department for the Chalmers company.

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Where "Automotive and Accessories Show" Will Be Held

THE Automotive and Accessories Show, which is the outgrowth of the Ford Accessory Show in Chicago last fall, is to be held this year the week beginning Sept. 14 in Chicago's Municipal Pier, a building to gladden the heart of a show manager, for there are two floors, each 2352 ft. long and 68 ft. wide, an area of 319,872 sq. ft. It is planned now to use but one floor unless demands require both. To the exhibition will be admitted trucks, tractors, motorcycles and accessories. In the pier is an auditorium seating 4000 in which it is planned to hold a trade educational convention during the show. A speedway event may be held in Chicago at the same time. There are also in the pier a restaurant, lunch counters and other typical pier adjuncts. The city's street cars run into the pier for the whole length of each exhibit room, with doors all along the sides of the rooms. The pier is within easy access of the Loop and hotel section.

Jobbers Enthuse at Idea of Fall Show

Way Things Look Now Official Endorsement Will Be Only a Formality

CHICAGO, April 16—If the letters that are being sent to the headquarters office in this city are to be taken as an indication the official endorsement of a fall show by the National Association of Automobile Accessory Jobbers will be only a formality.

Since the idea was suggested by Commissioner William M. Webster many jobbers and manufacturers have written to him stating with enthusiasm that the idea is good, all of which looks as though the Hot Springs convention in June may endorse the idea without much adverse discussion.

No building has been selected as yet, but applications for space are being received. The show will be held at the end of October in Chicago in conjunction with a meeting of the association.

General Electric To Enter Bijur

NEW YORK, April 15—It now appears certain that the reorganization of the Bijur Motor Lighting Co., Hoboken, and the entry of General Electric interests into the company will be effected. The Bijur company was placed in the hands of a receiver last January. The creditors' committee has been looking toward a reorganization or a liquidation of the affairs of the company. Liquidation was made impossible by the fact that the government had requisitioned the Hoboken building and that it required starters, made under Bijur patents, for airplanes and motor trucks now building. The General Electric Co. has proposed to take over the management, control and assets of the Bijur company, either through acquiring stock in the company or forming a new company, and will contribute at once as working capital $300,000 cash and $200,000 additional as required. Creditors will receive notes of the Bijur company, or its successor, for the full amount of their claims, the notes to bear interest at seven per cent and run for ten years. Of these notes $50,000 will be retired each year.

Here's the Automotive Supply Dealer

THE Automotive Supply Co. has been organized in Kansas City by W. E. Smith for wholesale distribution of automotive supplies. The name was selected primarily because of the business which will develop in tractor supplies as that automotive item gets larger distribution in the territory, and as the parts for the tractor are standardized. Smith was for several years special representative on bicycle tires and accessories in nine western states for the B. F. Goodrich Rubber Co. The new company has two men on the road and is now preparing a catalog. It will do a wholesale business only. The company probably will incorporate shortly for $25,000, Mr. Smith to be president of the company.

Bronx Elects Officers

NEW YORK CITY, April 15—The Bronx Automobile Dealers' Assn. has elected the following officers: Homer Waltermyre, president; John B. Elsey, vice-president; F. J. Bowman, secretary and L. R. Fitts, treasurer.

N.A.D.A. Gets After Drive-Away Hold-Ups

National Body Fights Prosecution of Dealers by Overzealous Constables

ST. LOUIS, April 15—The prosecution of dealers conducting drive-aways from Detroit continues to hold the attention of the National Automobile Dealers' Association. This week Assistant Secretary Hoelke has been investigating reports of a thriving industry between Monroe, Mich., and Toledo. He learned that six motorcycle constables were on guard there watching for machines without license. One Buick dealer was forced to pay $147.50, and several other fines were assessed and much time lost by forcing the drivers to return to Monroe. This situation was taken up with the state officials and the National Council of Defense is being urged to hasten action regarding it.

Colorado led in the flow of members this week, the Rocky Mountain Automobile Trade Association raising its total of membership close to the 100 mark. E. B. Wilson, a Buick dealer at Memphis, led in the personal work last week, sending in a dozen applications and promising to interest the rest of his subdealers.

Tom Botterill, vice-president for Colorado, was strong on personal work. The sales managers for the Peerless, Duplex and Nash companies took up the membership work. New Jersey sent in more applications than have previously come from that state. President Vesper was in Chicago all week attending various national meetings.

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News of The Liberty Loan Drive

Montana Hard at It

HELENA, MONT., April 16—The Montana Automobile Show Association, Great Falls, Mont., is co-operating with the government in putting on an intensified drive of the third Liberty loan by loaning its manager, A. J. Breitenstein, to act as state secretary to raise nine million dollars in subscriptions in Montana, and he has already opened an office here and brought about a good organization in the 43 counties of that state.

Montana, like so many other states, has made a most wonderful record in securing Liberty loan subscriptions. In the first campaign an allotment of $7,500,000 was specified but over $15,000,000 was raised. In the second drive $15,000,000 was the quota set, but when the drive was over the state had a total of within a few dollars of $20,000,000. In the third campaign Montana is asked to subscribe $9,000,000.

The automobile plays a very important part in the success of a Liberty loan drive in a state like Montana, which is the third largest in the Union, and has a great deal of inland territory that must be covered. County chairmen in conducting their campaigns use the automobile squads to more quickly and easily reach the citizens of the rural or outlying districts.

Secretary Breitenstein, who is well known to the automobile trade of the state, has sent personal appeals to automobile dealers and owners to co-operate and assist all chairmen in conducting their campaigns, and in no part of the state has there been reported an instance where the dealer or distributer has not quickly, gladly and readily put a number of cars at the disposal of those officers "who are in command."

The newly elected officers of the Montana Automotive Trade Association, which was held at Great Falls last month, and who have the placing of the Liberty loan automobiles at the disposal of county chairmen are: George Prentice, president, Great Falls; Frank D. Stoop, first vice-president, Kalispell; C. H. Guthrie, second vice-president, Billings; Edward Haskell, third vice-president, Glendive; A. J. Breitenstein, secretary-treasurer, Great Falls.

Directors — Frank Shoemaker, Missoula; A. P. Heaney, Great Falls; John Shyrock, Helena; C. F. Weaver, Lewistown; A. M. Bennett, Butte; H. D. Sheppard, Havre.

The general offices of the Montana Automotive Trade Association will be at Great Falls.

Columbus Put It Over

COLUMBUS, April 12 — Columbus automobile dealers, garagemen and accessory dealers took a prominent part in the Third Liberty Loan drive. Special committees for the sale of bonds were formed among the automobile trade, and it was due to their efforts that the quota for Columbus and central Ohio was reached.

Ralph C. Wilson, manager of the Columbus-Cadillac Co., was chairman of the sales force for all committees of the loan. In that capacity he had in charge the entire sales force, which numbered by the thousands.

O. C. Belt, of the Belt-Franklin Co., was chairman of the division in charge of automobile dealers and garages and manufacturers of automobiles and supplies. George M. Bennet was chairman of the committee to look after accessory and tire dealers.

North Carolina Drives Hard

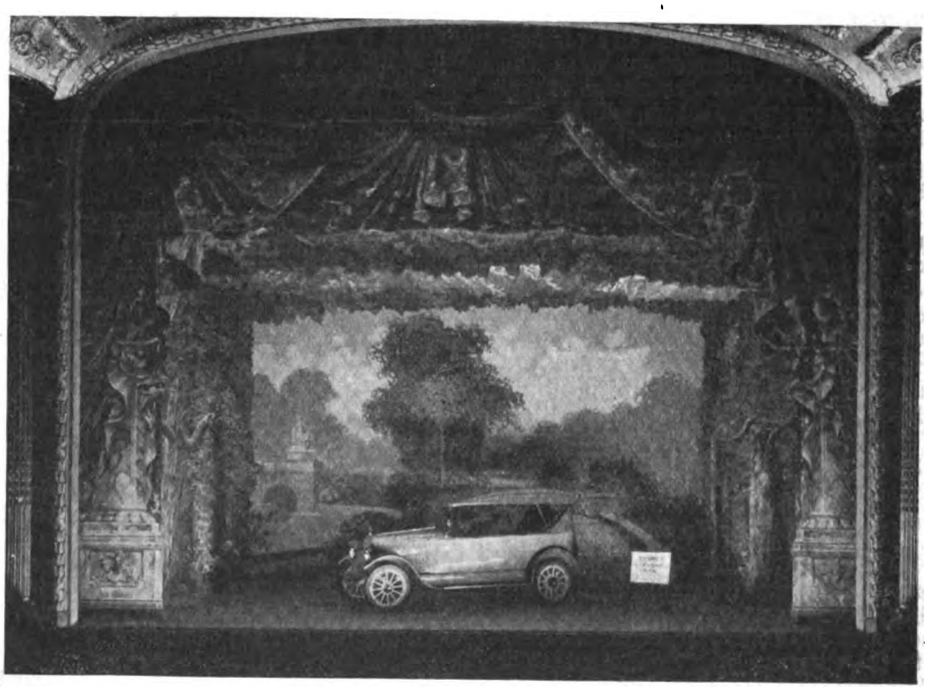
GREENSBORO, N. C., April 12—The drive in Greensboro and Guilford County in the third Liberty loan campaign was officially launched this week with a monster parade, in which several hundred automobiles, loaned by dealers and by private owners, were used to convey the mothers of North Carolinians who are serving with the colors in France to the campus of the State Normal College, where Charlie Chaplin, the moving picture comedian, began the drive with a speech which resulted in promises sufficient to absorb the Greensboro quota of the loan.

Automobile dealers are taking an unusually active part on behalf of the Government in this drive for funds with which to finance the war. Every dealer in the city was represented in the parade by one or more cars, appropriately decorated in the national colors and bearing placards exhorting the people to invest their savings in Liberty bonds. The dealers are also active in personal subscriptions to the loan, quite a number of them signing up for quite a large amount of bonds.

Boston Is Winning Out

BOSTON, April 13—The Boston motor dealers, garagemen and tire and accessory men are being thoroughly canvassed for the third Liberty loan. At a meeting early in the week at the Hotel Lenox George B. Kimball, chairman of the Liberty loan committee of the automobile trade, announced the names of those who were to canvass the trade. President John H. MacAlman of the Boston Automobile Dealers Association had to leave for the Chamber of Commerce meeting at Chicago, and after introducing Kimball he urged everyone to work hard for the success of the loan.

Following the meeting 19 of the men present turned in pledges for $1,000 each as individuals to give the loan a start. Another $1,000 was added by a



A NOVEL way of introducing to their townsmen and neighbors the new Comet Six Centennial model was inaugurated by the Comet Automobile Co., Decatur, Ill., when during the week of March 10 to 16 one of these cars was shown on the stage of the Lincoln Square Theatre in Decatur at each performance. The car is finished in a light pearl gray color, with upholstery in Spanish gray, and with top made of the same material. Beveled plate glass window is used in the back curtain. Shown in a woodland setting under strong foot and spot lights, the car made a beautiful appearance and made a decided hit with those who viewed it

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BUY LIBERTY BONDS

few of the others present. They all stated that this was merely a beginning, and did not represent the amounts their companies would turn in. Kimball said that there should be three types of pledges—one by the firms, a second by individual members, and a third by employees. He made it plain that the bonds were to be kept, and not sold, and also that bonds of the earlier issues were not to be thrown on the market to buy the new ones.

On the first day of the canvass Kimball received a pledge of $101,000 from Harry Noyes, the New England wholesale distributer of Buicks. No sum is set for the motor trade this time. On the second loan they put across more than $2,000,000 in a week with teams working. This time each of the 40 committeemen has from eight to ten firms to see, there being more than 300 in the trade in Boston.

The heads of the firms are asked to look after the work in their establishments, and to report to the man who made the canvass, the latter reporting to Kimball. No daily reports are being given out, Mr. Kimball intending to make out weekly statements. By the way, the committeemen are requesting pledge cards in hundred lots every day; it is certain there will be a big total raised. The men do not have to collect any money, merely getting the pledges signed. Those comprising the committee represent all branches of the trade, car and truck dealers, tire, garage and accessory men, as follows:

George B. Kimball, chairman; Day Baker, G. M. Leghorn, F. A. Hinchcliffe, J. J. MacGregor, F. E. Wing, J. L. Judd, Otto A. Lawton, J. S. Donovan, A. L. Danforth, C. E. Fay, A. H. Sowers, C. S. Henshaw, R. P. Page, Jr., J. L. Snow, C. P. Rockwell, J. M. Linscott, W. J. Connell, F. W. Stockbridge, Frank P. Allen, Lester Perrine, Norman Halliday, J. W. Bowman, J. S. Hathaway, L. B. Sanders, I. M. Boles, J. J. Harrington, George Grow, Russell Green, John B. Wilson, John Coward, Wallace Page, A. P. Underhill, Charles Bates, D. W. Palmer, W. H. Stevens, John H. Johnson, George W. Canterbury, J. G. Utterback, D. J. Fleming, Mr. Henderson, Mr. Brackett and Mr. Mitchell.

St. Louis Buys $3,000

ST. LOUIS, April 15—The St. Louis Automobile Manufacturers' and Dealers' Association voted at the April meeting to buy $3,000 of the third Liberty loan for the association. The association has bonds of the previous loans.

President Joseph A. Schlecht, Mound City Buggy & Auto Co., was re-elected president, H. F. Fahrenkrog, nominated as opposing candidate, withdrawing. The following officers were elected: Vice-president, P. H. Brockman, De Luxe Automobile Co.; treasurer, H. L. Schnure, Velie Automobile Co.; directors, F. W. A. Vesper, F. R. Tate, I. G. McNiece, W. L. Johnson, W. S. Roberts, C. R. Frampton.

The association issued a public request that all persons whose cars are stolen aid the association and other bodies working to eliminate car thefts in watching these cases. It is requested that any person noting at any time favors extended to car thieves or their associates at once report the incident to the association's vigilance committee.

F. W. A. Vesper, president of the National Automobile Dealers' Association, reported on progress made by that association in obtaining a general rule to govern the requirements for licenses for cars in drive-aways.

R. C. Frampton, chairman of the used-car show, reported a slight loss on that exhibition. H. W. Spalding, chairman of the annual automobile show, made a more favorable report, but figures are not given out for the present. The firms participating in the used-car show assert that the sales justified the loss at the show.

Kansas City Lined Up

KANSAS CITY, April 12—The Motor Car Dealers' Association of Kansas City is co-operating in the general plans for selling Liberty bonds in Kansas City territory, where this time there is no assignment of industries or lines of business. Each business organization got as many of its members as possible to volunteer for the selling committees of the campaign, which were assigned to six districts. There was one specific "drive," however, one committee being assigned to solicit the branch houses in Kansas City of foreign corporations. W. J. Brace and J. Frank Martin, of the Motor Car Dealers' Association, worked on this committee. The Motor Car Dealers' Association of Kansas City furnished the motor cars for transporting the speakers for the Liberty bond committee the week of the big drive. The secretary of the association arranged with various dealers to supply the cars with chauffeurs, four cars being in constant use each day from morning until midnight.

Liberty Loan Rally for New York

NEW YORK, April 15—New York dealers, represented by their Liberty Loan Committee, will hold a rally on Friday night of this week at the Automobile Club of America. Co-operating with the dealers are the National Automobile Chamber of Commerce, Automobile Club of America, Brooklyn Motor Vehicle Dealers' Association and the Bronx Automobile Dealers' Association. Charles A. Stewart, general manager of the Automobile Dealers' Association, has general charge of the affair The meeting will be addressed by Sergeant Harold Wright of the French Flying Corps and General Manager Alfred Reeves of the N. A. C. C.

Parsons on the Job

PARSONS, KAN., April 12—The Liberty loan is in full sway in Parsons. The quota was $490,000, which was entirely taken over by the four banks, the Parsons Commercial, the First National, State Exchange and Parsons State Bank. The banks are now re-selling the loans. The County Liberty Loan Committee, supported by the State Committee, is now working diligently with wonderful success, and it is expected that the entire amount will be subscribed. From the adjacent towns come flattering reports of over-subscribing from all sources.

Governor Capper was in Parsons April 11 as a guest of the Southeastern Kansas Automobile Association, and he made a very strong and patriotic Liberty loan talk. The people in this state are thoroughly aroused to the absolute necessity of standing solid behind any request of the Government that will help win the war.

How St. Louis Advertises

ST. LOUIS, April 15—The advertising for the third Liberty loan in this city is being done with space donated by the various firms of the city. Among those who are paying for full pages are: McQuay-Norris Manufacturing Co., Newell Motor Car Co., Vesper-Buick Auto Co. and Wagner Electric Manufacturing Co. For the present the drive is being made by the financial and larger business bodies. The drive by the industrial division will not be made until the last week for the clean up.

Put It Over Big

(*Continued from page* 6)

should. If not, let some one talk with him again and see if he couldn't buy a bond or so more. This going-back work nets results in many cases.

3—If there seems every reason why a man should buy and he doesn't, find out why. Don't let any man be a slacker. If necessary bring pressure to bear. Why should any man be permitted to live and laugh and enjoy life without doing his part if he is able?

4—Imagine you are combing the town for car sales—and work just as hard for a bond sale as you would for a car sale.

5—So work that when you get done you can say, "There! That's a good job!"

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

James P. Cory, formerly with the Pacific Kissel forces, distributer for the Federal truck on the coast and in the far western states, has been appointed district factory representative of the Federal Motor Truck Co. of Detroit.

George W. Kerr, formerly body engineer of the Reo Motor Car Co., Lansing, Mich., is now manager of the body department of the Mitchell Motors Co., Racine, Wis.

F. A. Bower, former chief engineer of the Weston-Mott Co., Flint, Mich., is now engineer of the Buick Motor Co. in the same city.

E. P. Smith, formerly engineer of the Hercules Motor Co., Canton, Ohio, is now connected with the engineering department of the Garford Motor Truck Co., Lima, Ohio.

H. S. McClellan has been appointed superintendent of Plant 1 of the Buick Motor Co., Flint. He was formerly general superintendent of the Chalmers Motor Co., Detroit.

Edward Maurer has resigned as chief engineer of the Lewis Spring & Axle Co., Chelsea, Mich., to become superintendent of shops of the Solvay Process Co., Detroit.

J. A. Kingsbury, metallurgist, formerly with the Studebaker Corp., South Bend, is now connected with the Trego Motors Corp., New Haven, Conn.

H. H. Heiger, St. Louis, has been made manager of the Used Car Department of the Briscoe Motor Sales Co.

H. J. Detterich, formerly in the advertising department of the Paige-Detroit Motor Car Co., will become advertising manager of the Bearings Service Co., whose main offices are in Detroit, with branches in twenty-two important cities.

John J. Walsh, formerly secretary of The Donegan Auto Body & Specialty Co., Hartford, Conn., has entered the firm of the Hartford Auto Painting Co.

Frederick J. Sharp has joined S. A. Miner, Hartford, Conn., Pierce-Arrow distributer.

A. E. Archer, president of the Detroit Electric Sales Co., St. Louis, has gone to the U. S. Arsenal at Rock Island, Ill., where he has been commissioned a captain in the Ordnance Department. He appointed Frank C. Herschbach as sales manager and Herman C. Wieland as garage and service manager.

C. M. Cunliffe, recently of Dallas, has been made service manager for the Briscoe Motor Sales Co., St. Louis.

James L. Fay, formerly president of the Wade Mining and Milling Co., St. Louis, has taken charge of the Armleder truck sales for the Weber Implement and Automobile Co., St. Louis.

H. J. Detterich has been appointed advertising manager of the Bearings Service Co., Detroit. He was formerly assistant advertising manager of the Paige-Detroit Motor Car Co., and previous to this he was connected with the advertising department of the Studebaker Corp.

Frederick Dickinson has been appointed assistant sales manager of the Hupp Motor Car Corp., succeeding H. E. Westerdale, who is leaving the Hupp organization to join the McCord Manufacturing Co. of Detroit, in charge of a new department, the nature of which will be announced later.

J. D. Maxwell, formerly head of the original Maxwell Motor Co. of Detroit, and for several years living in retirement at Tarrytown, N. Y., will shortly enter into active motor car work again as a member of the automotive products section of the War Industries Board.

George R. Beamer, for the past twelve years connected with the United Gauge Co. of New York as Detroit representative, has added to his duties by becoming Detroit branch manager for the Federal Ball Bearing Co. of Poughkeepsie, N. Y., manufacturer of the Shatz bearing.

H. B. Rector has purchased a half interest in the Oakland, Cal., business of the H. O. Harrison Co., Hudson, Dodge Brothers and Republic truck dealers. The Harrison company has also bought out the Butler-Veitch Co., which held the Hudson and Dodge Brothers agency in Berkley, an adjoining city to Oakland.

Donald Anthony, manager of the Baltimore branch of the Locomobile Co., has resigned and joined the aviation corps. F. B. Wilson will arrive in Baltimore to succeed him in charge of the branch.

Nicholas J. Poehlman, who was the Baltimore manager of the Pathfinder Sales Co., is in aviation training at Kelly Field, Tex.

J. S. Hochheimer, formerly in charge of the used car department of the United Auto Sales Co., is serving Uncle Sam in the Commissary department at a New Jersey camp.

O. E. Child, Moline, Ill., has resigned as credit manager for the Velie Co., Moline, to become office manager of the Motor Appliance Co., East Moline.

Edward Danner, Decatur, Ill., recently elected president of the Pan-American Motors Corp., has resigned from the agricultural machinery company with which he was connected as president, and will devote his entire time to the former concern.

L. L. Barnes, who has been Southern traveling representative for the Chalmers Motor Co., Detroit, resigned April 1.

James Taylor, formerly in the production department of the King Motor Car Co., Detroit, has been appointed chief inspector for the Interstate Tractor Co. of Waterloo, Iowa.

C. F. Baker has been appointed supervisor of agencies of the Templar Motors Corp., Cleveland.

Roy Simning Leaves Minneapolis Dealers

Resigns as Assistant Secretary of Association to Market New Gasoline Substitute

MINNEAPOLIS, April 16—Roy B. Simning, who has been assistant secretary of the Minneapolis Automobile Trade Association for several years, has resigned to become part of the Gasene Motor Fuel Co., which will make and market a fuel that has been invented by Thomas J. Setchell. It is made of kerosene and two mineral ingredients, and has been tested by a number of Twin Cities men and by the University of Minnesota.

Simning's resignation takes effect April 30. He has operated the office of the association at 707 Andrus Building, and has done much of the work in connection with the Twin Cities show. He also was a firm advocate of the present National Automobile Dealers' Association for about two years before the idea finally took definite form and did considerable to pioneer the movement.

Weidely and Cleveland Swap Men

CLEVELAND, April 11—George Weidely, vice-president of the Weidely Motors Co., Indianapolis, has become associate engineer for the Cleveland Tractor Co., Cleveland, thereby establishing a closer relationship between the two companies. The tractor company, on its part, has sent A. F. Knoblock, its general manager, to the Weidely plant as general manager. Each executive spends 2 days a week in the other company. W. H. Knoblock, a brother of A. F., has been made production manager for the Weidely company.

Motor Car Securities Quotations

	Bid	Asked
*Ajax Rubber Co.	55	60
*J. I. Case T. M. Co., pfd.	83	86
Chalmers Motor Co., com.	6	8
Chalmers Motor Co., pfd.	30	40
*Chandler Motor Co.	79	81
Chevrolet Motor Co.	119	122
*Fisher Body Corp., com.	30	35
*Fisher Body Corp., pfd.	80	84
Fisk Rubber Co., com.	50	53
Fisk Rubber Co., 1st pfd.	98	103
Fisk Rubber Co., 2nd pfd.	70	75
Firestone Tire & Rub. Co., com.	93	96
Firestone Tire & Rubber Co., pfd.	96	98
*General Motors Co., com.	117½	119½
*General Motors Co., pfd.	80	82
*B. F. Goodrich Co., com.	42	44
*B. F. Goodrich Co., pfd.	95	100
Goodyear Tire & Rub. Co., com.	138	140
Goodyear Tire & Rub. Co., pfd.	97	99
Grant Motor Car Corp.	3	4
Hupp Motor Car Corp., com.	2¾	3½
Hupp Motor Car Corp., pfd.	83	87
International Motor Co., com.	21	23
International Motor Co., 1st pfd.	52	56
International Motor Co., 2d pfd.	23	28
*Kelly-Springf'd Tire Co., com.	42	45
*Kelly-Springf'd Tire Co., 1st pfd.	77	83
*Lee Rubber & Tire Corp.	12	13
*Maxwell Motor Co., Inc., com.	26	27
*Maxwell Motor Co., Inc., 1st pfd.	52	54
*Maxwell Motor Co., Inc., 2d pfd.	19½	21
Miller Rubber Co., com.	106	109
Miller Rubber Co., pfd.	96	98
Packard Motor Car Co., com.	92	96
Packard Motor Car Co., pfd.	89	92
Paige-Detroit Motor Car Co.	16	18
Peerless Truck & Motor Corp.	14	16
Portage Rubber Co., com.	106	110
Regal Motor Car Co., pfd.	..	..
†Reo Motor Car Co.	14	16
*Saxon Motor Car Corp.	7	9
Springfield Body Corp., com.	..	..
Springfield Body Corp., pfd.	..	..
Standard Motor Construction Co.	11½	12½
Standard Parts Co.	..	70
*Stewart-Warner Speed. Corp.	53	55
*Studebaker Corp., com.	38	39
*Studebaker Corp., pfd.	80	90
Swinehart Tire & Rubber Co.	25	35
United Motors Corp.	23⅜	23⅝
*U. S. Rubber Co., com.	52	53
*U. S. Rubber Co., pfd.	104	105
*White Motor Co.	41	43
*Willys-Overland Co., com.	17	18
*Willys-Overland Co., pfd.	80	81

*At close April 13, 1918. Listed N. Y. Stock Exchange. †Par alue $10 a share.

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Drive-Aways Popular as Ever with Dealers

Oldsmobile Saves 366 Freight Cars for Government in 3 Weeks – 1,100 Cars Driven Away

DETROIT, April 13—The freight situation here is unchanged and drive-aways are as popular as ever. A few of the manufacturers who have found it easier to get freight equipment the past week have taken advantage of the opportunity and reduced their drive-aways considerably. But those who were less fortunate in obtaining freight cars have increased their drive-aways, making the aggregate about the same as it has been.

Records show that the Olds Motor Works has saved the government 366 freight cars in less than three weeks. In other words, the company, through its drive-away plan, has practically released 366 freight cars for other purposes such as transporting grain, government supplies, etc., 1100 cars having been distributed by the drive-away plan. Many of the drive-aways go to the storage houses the company has established in Detroit, Grand Rapids, Chicago, Toronto and Buffalo. From 60 to 70 per cent of the company's production goes overland, many of the cars traveling 600 to 700 miles.

The Hupp Motor Car Corp. has cut down its percentage of drive-aways. To equalize its distribution the company is giving the dealers only a certain percentage of their quota.

Some Companies Use the Boats

The major portion of the output of the Paige-Detroit Motor Car Co. has gone over the railroad, the company being exceedingly fortunate in obtaining a great number of cars. Only nine cars were sent overland from the plant the past week. The company is making use of boats to take cars to Cleveland andToledo, from which points the dealers can take them to their home towns.

The Federal Motor Truck Co. is freighting its product to the extreme east and west, but nearly all the nearby dealers are taking the trucks by drive-away. The company reports that many trucks are required to handle lumber around the ship building centers and is sending much of its production there.

Fifty cars left the Cadillac Motor Car Co. plant the past week. Most of them went to eastern points. The Scripps-Booth plant averages four or five daily on drive-aways.

A drive-away of 250 cars was arranged recently at a meeting of Overland dealers in which fifty of them will participate. Each dealer will supply the drivers for all the cars allotted to him.



A little bit late because of mail congestion, but here nevertheless—a general view of the show put on by the Syracuse Automobile Dealers' Association

Milwaukee Dealers Postpone Used-Car Show

MILWAUKEE, April 15—The lack of a suitable exposition hall has compelled the Milwaukee Automobile Dealers, Inc., to indefinitely postpone the second annual Used Car Show, which it was planned to hold during the latter part of April. The first show a year ago was a brilliant success and was to have been repeated this year. However, the auditorium is undergoing extensive alterations to provide a new exhibit hall equal in size to the main arena, and this precludes the use of the big building until after June 1. An outdoor show was proposed, but the plan was not deemed feasible. There is consolation in the situation, however, as the work now going on at the auditorium will make it possible for the M. A. D. to stage one of the largest annual shows next January that will be held in the United States during 1919.

Rock Island Out for Cash

ROCK ISLAND, ILL., April 12—Motor car repair work in the three cities of Rock Island, Moline and Davenport will be put upon a strictly cash basis after May 1. This was decided upon at this week's meeting of the Tri-City Automobile Trade Association. The new rule will also apply to supplies of all kinds. Credit customers will be notified of this decision and the newspapers will carry announcements. Shortening of credit is in harmony with the suggestion of the government.

Savannah Trade Elects Sinkler Its President

Cadillac Man Heads Dealer Body—Vinson, Vice-President and Richardson, Secretary

SAVANNAH, April 15—E. B. Sinkler of the Cadillac automobile agency has been elected president of the Savannah Auto Trade Association, which met recently to accept its charter.

Other officers elected were: Vice-president, C. E. Vinson; secretary, E. S. Richardson, and treasurer, S. N. Harris. The board of directors, besides including the president and vice-president, take in the following: T. A. Bryson, L. H. Dimmitt, J. H. Holcomb, J. G. Hardee and R. W. Heard.

T. A. Bryson, C. E. Vinson, G. B. Bache, J. C. Lewis and E. D. Graig were appointed members of a committee to draft by-laws for the association.

It was unanimously voted to give all the net proceeds of the automobile show to be given by the association at the Municipal Auditorium from April 16 to 20 to the Savannah Chapter of the American Red Cross.

Anderson Gets Government Work

SAVANNAH, April 10—Contract has been awarded to the Anderson Motor Co., Rock Hill, S. C., to construct 200 aviation trucks for the federal government at a cost of about $35,000.

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Massachusetts Shows Jump in Registrations

First 3 Months of 1918 Gain 14,977 Vehicles—Motor Trucks Increase

BOSTON, April 12—Some idea of the utility of the motor vehicle and the necessity for keeping abreast of the times by use of the modern method of transportation is shown by the figures of the Massachusetts Highway Commission for the first three months of this year compared to the same period of a year ago.

Up to April 1 of 1917 there had been registered 95,798 machines of all descriptions. For the first three months this year the figures are 110,775. That is 14,977 more machines.

An analysis of the figures shows that there was a larger percentage of commercial vehicles registered than passenger cars, proportionately if not numerically. The total passenger cars listed a year ago for this period was 78,439; this year 86,820 or 8381 more.

Commercial vehicles were 17,359 last year and 23,955 this year, or a gain of 6596 in three months. In other words, while the trucks showed a gain comparatively of more than 30 per cent the cars did not show more than 10 per cent.

There are now registered within 3000 of the total commercial machines listed for all last year. So there will be a much greater total for 1918, the only handicap being the getting of machines. More than 60 per cent of the total for last year has been listed now even though Massachusetts has had but a few weeks of good weather.

Financially the motor industry continues to shower its money into the State treasury, there being $132,294.41 more received this year than for the early part of last year, while the total will soon be $1,250,000. Here are the comparative figures:

	Jan. 1 to Mar. 31, 1917	Jan. 1 to Mar. 31, 1918	Increase
Total vehicles	95,798	110,775	14,977
Passenger cars	78,439	86,820	8,381
Trucks	17,359	23,955	6,596
Makers, dealers	3,055	2,233	*822
Motorcycles	3,393	4.024	631
Licenses, Op. Chf.	10,042	8,774	1,268
Renewals	22,024	26,765	4,741
Examinations	3,101	2,942	159
Receipts	$1,058,674.14		
Receipts	$1,190,968.55		
Receipts			$132,294.41

*Decrease.

Los Angeles Dealers Convene

LOS ANGELES, April 12—The Los Angeles Motor Car Dealers' Assn. has entered upon a series of salesmens' conventions, at which professional speakers instill advanced ideas of salesmanship and the spirit of aggressiveness. It is recognized here that the present is not the time when the motor car business is "easy money" and real, actual, hard work must be done to maintain the volume of business that is necessary in view of the sums invested in the industry.

The second of these conventions was held last evening and almost 300 men attended it. The principal address was on "Business Getting" by Brooks Fletcher of Marion, Ohio.

There was no hilarity about the gathering. The 300 men were assembled for the purpose of mutual benefit and apparently appreciated the fact. President Arnold proposed a silent toast to the President of the United States, and followed this with a few remarks introductory to the talk by Mr. Fletcher. The declaration was made by President Arnold that apparently the motto of the automobile industry in Los Angeles in the past has been *gain* but now it must be *service*.

St. Louis Has An Accessory Show

ST. LOUIS, April 12—The Famous & Barr Co., a department store here, last week staged in their store what was advertised as a special "motor car accessory show," in which they had the assistance of special manufacturers' representatives of a dozen concerns, including Vesta Battery & Equipment Co., J. B. Sickles Saddlery Co., Indian Refining Co., Binz-Bennett Supply Co., Wizard Arc Spark Plug Co., Hamilton Rubber Co., Megue Rubber Co., Adams & Elthing Co.

The feature of the advertising was cut prices. Some of the prices advertised were: Pyrene outfit, $7.85; Champion X spark plug, 42c.; Century Bar Tread tires, 30 x 3½, $18.95; Havoline oil, $1.98 a gallon. The Havoline oil prices were progressive in their cutting. The first price was $2.15, and some of the downtown hardware stores advertised at that price in competition. Later in the week the Famous & Barr Co. made another cut, and their $1.98 price was printed in some papers next to the hardware ads at $2.15. Most of the prices offered were about the ordinary jobbers' prices. The regular accessory dealers ignored the prices.

Martin Airplane Plant Nearly Ready

CLEVELAND, April 12—The 5-acre plant being completed for the Glenn L. Martin Airplane Co. is rapidly approaching completion, and it is expected that the Martin company will be in production in about 60 days. The formation of this company marks the entrance into the airplane industry of a concern which not only intends to build war products, but which will probably be an important factor in the commercial airplane developments which will follow the war.

The concern is incorporated for $2,000,000 and has erected its plant on a 55-acre field, which is sufficient not only to give plenty of room for expansion purposes of the factory, but also to allow a landing and experimental field for the planes manufactured. It is only in a few instances that airplane factories have been able to secure flying accommodations in close proximity to the manufacturing plant.

Maryland Dealers Plan to Continue Driveaways

Many Go to Factories to Make Arrangements for Getting Cars to Agencies

BALTIMORE, April 12—A number of dealers are at factories arranging driveaways. Herbert M. Hartman, vice-president and general manager of the Zell Motor Car Co., is at the Peerless factory, Cleveland, and will next week drive a score of cars down, with more than a dozen owners at the wheels of their own machines.

Earle Williams, general manager of the Packard Motor Car Co., of Baltimore, and B. F. Baker, sales manager of the Passenger Car Department for the same firm are at the Packard factory, Detroit, making arrangements for a big driveaway of passenger cars and trucks.

Harry A. Mayer, vice-president and general manager of the United Auto Sales Co., Studebaker and Garford distributer has just completed plans and brought in a lot of Studebakers and Garfords over the road. This company will hold a private show of the new Studebaker line during the coming week, the first showing of the new line in the city.

But there is one big problem that the dealers are facing. It is in their shops. Some of the shops are working with as low as 25 per cent of their regular force of mechanics and this is not due to lack of paying wages demanded. There is some talk of attempting to train women in some of the shops for male help appears to be unobtainable. Whether women will be put in the shops is a question that is being seriously debated at this time and it is possible that this step will have to be taken.

Overland Drive-Away Reaches York

YORK, PA., April 12—One hundred and thirty-five drivers sent out by the Overland Harrisburg Co., with headquarters in Harrisburg and this city, have returned overland with that many Overland cars. One hundred of the drivers were from York and 35 from this city. H. Schroeder is the manager of the Overland Harrisburg company. Twenty-four men from the J. W. Richley Auto Co. left to-day for Detroit, where they will get two dozen Buick cars and drive them over the road from that city. The concern, which also has the agencies for the Dodge and Nash cars, has driven at least 250 Buick and Dodge cars over the road this spring.

Kaenjay Enters Jobbing Field

NEW YORK, April 12—The Kaenjay Sales Co., manufacturers' representative, has entered the general jobbing business and is traveling three men covering New England, New York, Pennsylvania, New Jersey, Delaware and Maryland.

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Would Limit Speed for Driveaways to 30 Miles

Letter Being Sent to Manufacturers Asking Them to Caution Drivers to Use Greater Care on Road

DETROIT, April 12—A joint letter is being prepared by the Detroit Automobile Club, the Monroe Chamber of Commerce and the Toledo Automobile Club to be sent all the automobile manufacturers in this territory asking them to caution all drivers taking cars from the factory overland to stay within a speed of 30 m.p.h.

Although nearly all the manufacturers are now cautioning drivers to limit themselves to a speed of 18 m.p.h. complaints are being made that many of the driveaways exceed a speed of 40 miles. This is not only harmful to the car but proves dangerous to the drivers as well as those of other vehicles.

It is reported that many men that are brought to the factories to drive-away cars indulge in liquor while en route or before they start, making for unsafe driving on the highways. It is pointed out that dealers should use care in selecting capable and reliable men for drive-aways. Illustrating what can happen on a drive-away where a high speed is attained, an instance is cited. A train of sixteen cars were running at a speed over 40 m.p.h., cars being only 4 or 5 ft. apart. The leader suddenly stopped at a railroad crossing, causing all of the following cars to jam their radiators. Drivers are very often inclined to appropriate the road at dangerous speeds. One driver stayed on the same path until he nearly touched an approaching car. The latter to avoid an accident swung into the ditch and the factory driver escaped with little injury when his car turned over.

Deere Buys Waterloo Engine

MOLINE, ILL., April 12—Deere & Co. have bought the entire business of the Waterloo Gasoline Engine Co., Waterloo, Iowa. The consideration is said to have been $2,000,000. L. W. Witrey, vice-president and superintendent, and J. E. Johnson, secretary and treasurer of the old company, are retained to direct the business of the gasoline engine and tractor plant.

The Waterloo Gasoline Engine Co. was established in 1885 for the manufacture of gasoline engines. About four years ago the company came out with a tractor which has won deserved renown as the Waterloo Boy. The business grew so rapidly after the tractor was produced that extensive additions to the plant were necessitated. It now covers ten acres and has a capacity of fifty tractors and 100 gasoline engines per day. By the purchase of the Waterloo business Deere & Co. enter the tractor field with a product with an established reputation and consequently are enabled to assume an important position in the tractor industry at once.

What Your $50 Liberty Bond Will Do

It will protect 1000 soldiers from smallpox and 666 from typhoid. It will assure the safety of 139 wounded soldiers from lockjaw, the germs of which swarm in Belgian soil.

It will render painless 400 operations, supply 2 miles of bandages—enough to bandage 555 wounds.

It will care for 160 injuries in the way of "first-aid packets."

It will furnish adhesive plaster and surgical gauze enough to benefit thousands of wounded soldiers.

$18,000 invested in Liberty Bonds will equip an infantry battalion with rifles.

$50,000 will construct a base hospital with 500 beds, or equip an infantry brigade with pistols.

$100,000 will buy five combat airplanes, or pistols, rifles, and half a million rounds of ammunition for an infantry regiment.

Extra Catalog for Changes

WHEN Hyslop Bros., Ltd., Toronto, prints its catalog, Advertising Manager Martin has several printed in which there is a blank ruled leaf bound in between every pair of pages. On these any changes are recorded, so that the data are at hand when the next issue is printed. For example, a blank sheet is between pages 94 and 95. If changes occur in the goods on page 95 they are entered on the facing blank page. On the front page of the book is kept an index in pencil of the pages on which changes have been entered.

Spring Boosts Philadelphia Sales

PHILADELPHIA, April 12 — Spring weather has been stimulating sales of both new and used cars, and indications point to unusually heavy sales. In a campaign to sell used cars, some of the dealers are making a special effort to get out attractive window posters emphasizing that each price is marked in plain numbers on the cars for sale, and that under no consideration will there be any deviation from those prices. Others, representing large manufacturers, make a point of announcing in show window placards that no other concern's cars are handled, as sales of cars that can be vouched for only will be made. These two points being stressed at present are new phases of the Row's activities.

St. Louis Campaign to Stop Motor Car Thefts

Value of Stolen Cars Five Times as Great as All Other Property Stolen in the City

ST. LOUIS, April 12—A campaign to stop thefts of motor cars has been undertaken by a conference committee representing the Automobile Manufacturers' and Dealers' Assn., the St. Louis Automobile Club, Chamber of Commerce and the Municipal Legislative Committee. The first step was to order an attorney retained to watch the prosecution of all motor car thieves and to oppose any move for pardon or other leniency after conviction.

The Conference Committee met last Wednesday at the Marquette Hotel, and was told by the automobile dealers present, led by Frank R. Tate, that this city was the worst motor car theft center in the country. The committee was informed that any person wishing to buy a stolen car could order it in advance, giving the description, and that the thieves were so organized that the buyer would be protected from annoyance.

M. W. Doyle, a motor car insurance man, submitted statistics to show that the value of stolen cars was five times that of all other stolen property in the city, and that the police department assigned only five detectives to this work and 125 to other thefts. He submitted statistics to show why the rate was raised recently. The stolen machines not recovered were: For 1913, one; 1914, two; 1915, eight; 1916, thirty-two; 1917, 283.

The reasons for the popularity of thefts here, it was stated, is the failure to get convictions of thieves and the light sentences or paroles when conviction could not be evaded.

Recently independent detectives working in St. Louis recovered nine St. Louis machines in one Illinois town, and found there 18 other stolen cars. In another town seven were found that had been taken from St. Louis. Some arrests were made, but Frank R. Tate, a dealer, says that the right man has not been reached. Tate says that his car has been stolen three times, and each time he got it back by communicating with a certain man downtown. He said that each time a tire was missing or other toll was taken.

Canton Garagemen Organize

CANTON, April 12—Garage owners of Canton, Ill., have formed the Canton Garage Owners' Association and elected the following officers: President, A. R. Street; treasurer, Meade McClatchey; secretary, J. T. Jelly. Chas. L. Turner, president of the Illinois Garage Owners and Dealers Association, was present and assisted in the organization.

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-62	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	1595	....	1595	2150	2150	....	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1145	1095	....	....	1395	....	....
AMERICAN																	
B	6-3½x5	23.4	G & D	Zenith	G & D	DD	3	122	32x4	SS	1645	1595	1695	....	....	....	....
ANDERSON																	
20	6-3½x4½	25.3	Conn	Zenith	Wstns	DP	3	120	33x4	SS	**1465	....	....	....	2165	....	....
400-F	6-3½x5½	29.4	Bosch	.....	.....	DD	3	...	....	....	**1925	....	....	....	....	....	....
APPERSON																	
8-18	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	34x4	SS	†2550	....	2550	....	....	....	....
AUBURN																	
6-39-B	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	120	34x4	SS	1345	1345	....	....	....	....	1595
6-44	6-3½x5½	29.4	Delco	Rafid	Delco	DP	3	131	35x4½	SS	....	1685	1685	....	2450	....	1985
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142	34x4½	QD	3750	3750	4000	4550	5000	5250	....
BELL																	
18	4-3½x4½	22.5	A.Kent	Zenith	Dyneto	D	3	114	32x3½	QD	†995	995	....	....	....	....	....
BIDDLE																	
H	4-3½x5½	22.5	Eisman	Zenith	G & D	DP	4	121	32x4	QD	3600	....	†3650	....	4100	4000	....
BOUR-DAVIS																	
18B	6-3½x5½	29.4	West.	Stmbg	West.	DP	3	118	33x4½	QD	....	1785	....	....	....	....	....
	4-3½x5½	22.5	West.	Rafid	West.	DP	3	118	32x4½	....	....	1660	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	5500	....	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3½x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	825	825	....	....	....	....	850
BUICK																	
E 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	1185	1845	....
E 44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	....	†1695	....	....	1265
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	132 135	35x5 34x4½	SS	2805	....	2805	....	3650	4145	....
CASE																	
U	6-3½x5½	29.4	Wstns	Rafid	Wstns	D	3	125	35x4½	SS	†1875	....	1875	....	**2375	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wstns	DP	3	117 122	32x4 34x4	SS	1565	1565	1615	1625	1950	2925	....
CHANDLER																	
	6-3½x5	29.4	Bosch	Rafid	Wstns	DP	3	123	34x4	SS	†1595	†1675	1595	2195	2295	2895	....
CHEVROLET																	
490	4-3½x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3½	C	660	685	....	....	1060	....	....
FA	4-3½x5½	21.7	Remy	Zenith	A-Lite	C	3	106	33x4	SS	935	935	....	....	1475	....	....
D	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	120	34x4	SS	1385	1385	....	....	....	....	....
COLE																	
870	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	33x5	SS	2395	†2395	2395	2495	2595 2795	....	....
COLUMBIA																	
C&D	6-3½x4½	25.3	A.Kent	Stmbg	W.Lard	DP	3	115	32x4	....	†1495	1350	....	....	2395	....	....
COMET																	
C-50	6-3½x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	....	....	....	1285	....	....	....	....
COMMONWEALTH																	
4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	115	32x3½	SS	†995	995	....	....	....	....	....
CROW-ELKHART																	
CE-36	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114	32x3½	SS	995	995	....	1295	1395	....	....
CUNNINGHAM																	
	8-3½x5	45.0	Delco	Stmbg	West	D	3	132 142	35x5 37x5	....	....	4250 4750	....	....	....	....	....
DANIELS																	
B	8-6½x5	33.8	Wstns	Zenith	Wstns	D	3	127	34x4½	QDR	3250	3250	3250	....	....	....	....
DAVIS																	
H, I, K	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1485	1485	....	1850	....	....
J, I	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	125	34x4½	....	....	1785	1785	....	....	....	....
DISPATCH																	
	4-3½x5	22.5	Bosch	Rafid	U.S.L.	CU	4	120	36x3½	QD	1150	....	1250	1400	1400	....	....

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	830	....	....	1095	....	....	865
B	6-3½x4½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	1050	1050	*1050	1650	1650	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3750	3700	3750	....	5180	5250	....
MAXWELL																	
25	4-3½x4½	21.0	A.Kent	K D	Simms	C	3	109	30x3½	C	‡825	825	....	....	1275	1275 1175	985
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wstns	DP	3	136	35x5	QD	3900	3900	3900	....	5000	5050	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	122	34x4½	QD	†3500	*3500	....	....	....	....	....
METZ																	
25	4-3½x4	24.0	A.Kent	A.W.T.	Wstns	F	.	108	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.3	Conn	Rafid	Splitdf	C	3	120	32x4	SS	1250	1250	....	1850	1950	....	300x
C-42	6-3½x5	29.4	Conn	Stmbg	Wstns	C	3	127	34x4	SS	‡1490	1510	1525	2135	2275	2850	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1650	1650	....	....	2280	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1985	....	1985	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	110	32x3½	SS	995	995	....	....	....	....	....
J	6-3½x4½	25.3	Conn	Stmbg	Dyneto	D	3	117	33x4	SS	1295	1295	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	31x3½	QD	565	‡635	....	....	965	....	....
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x3½	QD	....	995	....	....	1850	....	....
MOON																	
6-36	6-2½x4½	19.8	Delco	Titan	Wagner	DP	3	114	32x3½	SS	....	1295	....	....	....	....	....
6-66	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1985	....	1985	2650	2650	....	....
MOORE																	
30-E	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	106	30x3½	....	695	....	....	....	....	....	....
MURRAY																	
	8-3½x5	33.8	Dixie	Zenith	Wstns	DP	3	128	34x4½	....	2800	2800	2800	3600	....	4000	....
NASH																	
671	6-3½x4½	29.4	Delco	Rafid	Bijur	DP	3	125	34x4	SS	....	....	1465	....	....	....	....
681-683	6-3½x5	25.3	Delco	Marvel	Delco	P	3	121	34x4	SS	†1295	1295	....	....	1985	....	....
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafid	Wstns	C	3	128	34x4½	QDR	†2150	†2150	2150	2645	2830	....	....
Twelve	12-2½x4½	39.6	Delco	Rafid	Bijur	C	3	128	34x4½	QDR	†2750	†2750	2750	3245	3430	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	....	....	....
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1050	1050	....	1550	1550	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1495	....	....	....	....
37	6-2½x4½	18.9	Remy	Johnson	Remy	C	3	112	32x4	SS	†1195	1195	....	1595	1695	....	....
OLYMPIAN																	
	4-3½x4½	16.9	Conn	Stmbg	A-Lite	D	3	112	32x3½	....	†1085	1085	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	112	32x4	SS	†965	985	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Titan	A-Lite	C	3	104 106	31x4	C	835	850	†875	....	1340	....	....
85B6	6-3½x4½	25.3	.....	Titan	A-Lite	C	3	116	32x4	....	1195	1195	....	1420	1620	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.7						136			‡3950	‡3950	3950	....	....	5000	....
W-42	6-4 x5½	38.4	Bosch	Zenith	O-M	OM	6	142	35x5	SS	....	....	5300	....	6300	6300	....
PACKARD																	
3-35								136			....	....	4300	....	....	5850	....
3-25	12-3 x5	43.2	Delco	Own	Bijur	DD	3	128	35x5	QD	....	3950	3950	5300	....	5500	....
PAIGE																	
6-39	6-3½x5	23.4	Remy	Stmbg	G & D	D	3	117	32x4	SS	1395	1395	....	....	1925	....	....
6-55	6-3½x5½	29.4	Remy	Rafid	Remy	D	3	127	35x4½	SS	....	....	1870	2850	....	3230	....

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DIXIE FLYER																			
LS35	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	†995	995	....	....	1375	....	....
DOBLE-DETROIT																			
	2-5 x4	....	Doble	Stmbg	Wagner	..	.	135	35x5	....	....	....	3750	....	....	....	....
DODGE BROTHERS																			
	4-3½x4½	24.0	Own	Stewart	N.E.	D	3	114	{32x3½ 33x4	SS	885	885	....	1350	1350	....	....
DORRIS																			
6-80	6-4 x5	38.4	Bosch	Stmbg	Wsths	DD	3	132	33x5	SS	....	....	....	....	....	....	....
DORT																			
11	4-3½x5	19.6	Conn	Carter	Wsths	C	3	105	30x3½	QD	865	865	**1000	1265	1265	....	....
ELCAR																			
D.F.	4-3½x5	19.6	A.Kent	L-O	Dyneto	DP	3	116	{32x4 32x3½	SS	....	1095	1095	....	{1625 1795	....	....
	6-3½x4½	25.3	A.Kent	Stmbg	Dyneto	P	3	116	33x4	....	....	1295	1295	....	....	....	....
ELGIN																			
A	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	117	33x4	....	†1095	1095	....	....	**1645	....	....
EMPIRE																			
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS	1165	1125	....	....	....	....	....
70-A	6-3½x4½	25.3	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	....	1345	1375	....	....	....	....
73	.....	....	.....	.....	.....	..	.	...	....	....	....	†1360	....	....	....	....	....
FIAT																			
E-17	4-5½x6½	44.1	Bosch	Zenith	Wsths	D	4	140	35x5	QD	....	....	5500	....	....	6500	....
FORD																			
T	4-3½x4	22.5	Own	{Holly Kngstn	.....	D	2	100	30x3½r	C	435	450	....	650	785	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	33x4½	SS	2200	†2250	2250	2850	3050	3200	....
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	....
GRANT																			
G	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	114	32x3½	....	‡1095	1095	....	1575	1595	....	1350
HAL TWELVE																			
21-A	12-2½x5	39.6	Remy	Stmbg	Wsths	DP	3	135	34x4½	SS	3600	3750	3600	....	4500	5000	....
HALLADAY																			
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS	‡1185	1150	....	....	....	....	....
R	6-3½x5	29.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS	1385	1385	....	....	....	....	....
HARROUN																			
	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....	....	895	....	....	....	....	....
HARVARD																			
4-30	4-3 x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	785	†985	....	....	....	....	....
HAYNES																			
38	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1850	....	....	....	....	....
39	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1950	....	1950	2650	....	....	....
44	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2910	....	2910	....	3460	....	....
HOLLIER																			
206	6-3½x4½	25.3	Remy	Stmbg	Splitdf	C	3	116	32x4	SS	....	1485	....	....	....	....	....
188	8-3 x4½	28.8	A.Kent	Stewart	Splitdf	C	3	116	34x4	SS	†1485	1485	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	34x4*	SS	....	†2050	1950	....	2750	3400	....
HUPMOBILE																			
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	113	32x4	....	1250	1250	....	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	950	1000	1025	....	....	....	....
JACKSON																			
349	8-3 x3½	28.8	A.Lite	Zenith	A-Lite	DP	3	118	34x4	SS	†1495	1495	1570	....	2195	....	....
JONES																			
36-AB	6-3½x5½	29.4	Remy	Rafid	Wsths	DP	3	125	34x4	SS	†1875	1875	1875	....	2750	....	....
JORDAN																			
J-60	6-3½x5½	29.4	Delco	Stmbg	Bijur	DD	3	127	35x4½	SS	1995	†1995	1995	....	2750	3500	....
KING																			
F	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	....	†2350	2150	....	**2950	....	....
KISSEL																			
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1495	1496	1585	1985	1985	....	1985
Double-6	12-2½x5	39.6	Delco	Stmbg	Own	DD	3	128	34x4½	....	1585	....	2450	....	2850	....	2850
KLINE																			
6-38	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1495	1495	†1495	....	2200	....	....
LEXINGTON																			
6-O	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	....	1385	....	....	1545	....	....
6-R	6-3½x4½	25.3	Conn	Rafid	Wsths	P	3	122	34x4	QD	....	1585	1585	....	1785	....	....
LIBERTY																			
10-B	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1350	1350	....	....	1925	....	....
LOCOMOBILE																			
E-38	6-4½x5	42.3	Berling	B & Ball	Wsths	DD	4	139	37x5	QD	†5150	*5000	5000	....	....	6200	....
E-48	6-4½x5½	48.6	Berling	B & Ball	Wsths	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7200	....
LOZIER																			
84	4-4½x6½	38.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	....	....	....
82	6-3½x6	36.0	Eisman	Rafid	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																			
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD	.	132	35x4½	SS	....	....	1650	....	....	....	....
MADISON																			
	6-3½x5	22.4	Remy	Rafid	Remy	DD	3	{124 {120	34x4	SS	†1485	1485	1485	....	....	....	....
PAN-AMERICAN																			
G-5	6-3½x5	28.4	G & D	Rafid	G & D	D	3	130	33x4½	SS	....	1500	....	1650	....	1950	....
PATERSON																			
6-45	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	120	32x4	C	†1295	1265	1295	....	**1795	....	....
PEERLESS																			
56	8-3½x5	33.8	A.Kent	B&Ball	A-Lite	DD	3	125	35x4½	SS	†2340	....	2340	2850	2990	3690	....
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	34x4½	QD	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60.0	Bosch	Own	Wsths	C	4	147½	36x5½	QD	†6400	6400	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	23.4	Delco	Titan	Delco	DP	3	120	32x4	SS	†1295	1295	....	....	....	....	....
PREMIER																			
6-C	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	....	†2285	2285	....	....	....	....
PRINCESS																			
36-F	4-3½x4½	22.5	Splitdf	Schebler	Disco	D	3	108	32x3½	....	875	875	875	....	....	....	....
REGAL																			
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD	....	795	....	....	....	....	....
REO																			
	6-3½x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	1550	1550	....	....	....	....
	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	120	34x4	SS	1225	1225	....	....	....	....	....
REVERE																			
	4-4½x6	30.6	Bosch	Stmbg	Bijur	DD	4	130	32x4½	....	....	....	....	....	....	....	....
ROAMER																			
C-6-54	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DP	3	128	32x4	SS	2350	†2250	2475	....	....	....	....
D-4-75	4-4 x6	25.6	Bosch	Stmbg	Bijur	DP	3	128	32x4½	SS	2950	....	3250	....	3960	....	....
ROSS																			
	8-3½x5	33.8	.....	W.Lard		DD	3	130	35x4½	SS	‡1850	....	1850	....	....	....	....
SAXON																			
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	935	1045	....	1395	....	....	....
SAYERS																			
SIX-42	6-3½x4½	25.3	Delco	.....	Delco	P	3	118	32x4	....	....	1395	....	....	....	....	....
SCRIPPS-BOOTH																			
D&H	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1285	....	....	....	....	....	....
G	4-3½x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	†935	....	....	....	....	....	....
Six-39	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1195	1195	....	....	....	....	....
SIMPLEX																			
V	6-4½x6½	45.9	Eisman	Nwcmb	Bosch	D	4	143½	37x5r	QD	Chassis	7000	....	....	....	....	....
SINGER																			
	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	139	35x5	QD	4200	†4325	4100	....	5250	5125	....
STANDARD																			
G	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	....	†2450	....	2450	....	3500	4000	....
STANLEY																			
Steamer	2-4 x5	12.8	.....	.....	.....	..	.	130	35x4½	SS	....	†2750	2800	....	....	....	....
STEARNS																			
SKL4	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS	†1785	1785	2175	2400	2575	2900	....
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	125	35x4½	SS	†2575	....	2575	3200	....	3875	....
STEPHENS																			
Salient Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	118	32x4	QD	1585	1585	†1650	....	2085	....	....
STUDEBAKER																			
SH-4-40	4-3½x5	19.6	Remy	B&Ball	Wagner	C	3	112	32x3½	SS	1050	995	....	....	1525	....	....
EH-6-50	6-3½x5	29.4	Remy	B&Ball	Wagner	C	3	119	32x4	SS	1450	1395	†1395	....	....	....	....
E-G-6	6-3½x5	36.0	Remy	B&Ball	Wagner	C	3	126	33x4½	....	....	1795	....	....	1950	....	....
STUTZ																			
S	4-4½x5	30.6	Bosch	Stmbg	Remy	C	3	{120 130	32x4½	SS	2550	†2650	*2750	....	....	....	....
SUN																			
17	6-3½x5	29.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	....	....	....	....
TEMPLAR																			
A-445	4-3½x5½	18.2	Remy	Zenith	Remy	P	3	118	32x4	SS	2385	2085	....	....	....	....	....
VELIE																			
38	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS	1340	1340	†1340	....	1885	....	....
39	6-3½x5½	29.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS	....	....	1595	....	....	....	....
WESTCOTT																			
S-18	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1890	1940	1940	**2790	**2790	....	....
WHITE																			
16-Valve	4-4½x5½	28.9	.....	Own	L-N	P	4	{124½ (137½	35x5	U	†5000	....	†5000	6050	6050	6900	....
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	121	34x4½	SS	....	....	1625	2275	2325	2425	....
88-8	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	125	34x4½	SS	†2550	....	2100	....	2800	2900	....
WILLYS																			
89-6	6-3½x5½	29.4	Conn	Titan	A-Lite	C	3	120	33x4½	SS	†1450	....	1450	....	1330	....	....
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	3150	3150	3200	4150	4400	4400	....
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3850	3850	3850	4850	5100	5100	....
WOOD'S																			
Dual Power	4-2½x4	12.1	A.Kent	Stmbg	Own	Mag	.	124	35x4½	QD	....	....	....	2950	....	....	....

*6-passenger. †4-passenger. ‡3-passenger. t-town car.
**Convertible.

ABBREVIATIONS—"A. Kent" Atwater Kent, "A-Lite" Auto-Lite, "B. & Ball" Ball & Ball," "Conn" Connecticut, "G & D" Gray & Davis, "Eisman" Eisemann, "L-N" Leece-Neville, "N. E." North East, "Nwcmb" Newcomb, "O-M" Owen Magnetic, "Rafid" Rayfield, "Stmbg" Stromberg, "Splitdf" Splitdorf, "Titsn" Tillottson, "Wsths" Westinghouse, "W. Lnrd" Ward Leonard, "D" Disk, "DD" Dry Disk, "P" Plate, "DP" Dry Plate, "C" Cone, "F" Friction, "G" Gearless, "CU" Control Unit, "Mag" Magnetic, "SS" Straightside, "QD" Quick Detachable, "C" Clincher, "DC" Detachable Clincher, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers, . NOTE—37½x5½ r means that the rear tires are 37x5½ and the front are smaller. Detachable top, 300x, means $300 extra.

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BUY LIBERTY BONDS

Sentiment Favors Cash Business

WATERLOO, IOWA, April 12—In order to ascertain the sentiment of the dealers surrounding Waterloo as to the cash basis for a business, the Repass Automobile Co. sent a letter to its dealers. The replies received indicated that the dealers had found credit accounts difficult to handle, and nearly all of them said they were in favor of the cash basis. Some of them said they anticipated difficulty in getting the new plans started, but all indicated that they were going to try it.

The Invisible Ink

(*Continued from page* 16)

especially those who wait too long.

"Furthermore, you've got to have at least a demonstrator or you can't very well sell anything. It's all right to talk to these farmers about what a fine car you have, but until you take it up and show it to them, it doesn't really get home to them what you talk to them about.

"Furthermore, someone of them may take a notion some day that he wants a car right hot off the bat and then he's got to have it right then or maybe he isn't going to buy it at all. It may cost you a little interest money to carry a small stock of these Sennetts, but what does that small interest money amount to compared with the possibility of making or losing a sale because you haven't the stock?"

"Well, I'll think about it," said Miller. "I'll come down to take one anyway and maybe I can get one of the boys to come down with me and drive another one back. You see, it spoils almost a whole day for us to go down there and drive cars away with the roads as bad as they are now. You have to go pretty slow. Of course, it doesn't damage the cars much, if you're careful, but it takes a lot of time."

"That's all very true, but on the other hand, the car that has been driven from Callawassa to Merrylton and incidentally from the factory to Callawassa is a much better car than it was before it was driven. The man who buys one of those knows that the car has been tested out and there can't be any bugs in it. The car that has been driven away contains sales points that are not contained in a new car and you want to take advantage of these points.

"Your desk is full of contracts right now that you want prospects to come in and sign. As long as they are in the condition they are now, they aren't worth anything to you. They are written in invisible ink and the ink never will show through unless you rub something on it that will bring it out. One of the things that you've got to have to bring it out is cars and the only way you can get 'em that I can see, is to drive 'em away and have a stock."

BOOKS RECEIVED

"How to Run a Retail Automobile Business at a Profit," A. W. Shaw Co., Chicago; publisher of "System." The book takes up ways to reduce selling costs, cutting down overhead expense and better profits despite higher costs. It goes into cost analysis and cites examples of how dealers and garagemen have figured ways of reducing expenses and increasing profit. One of its best features is the indication of the percentages that different expenses should be to the gross business. There are 218 pages. Motor World was among those who assisted the A. W. Shaw Co. in compiling the information in this book.

CATALOGS RECEIVED

The U. S. Ball Bearing Mfg. Co., Chicago, has compiled a pamphlet, of formulae and calculations necessary to determine the loads on ball bearings resulting from various types of power-transmitting elements. These include the calculation of bearing loads from belt, rope, chain, spur gear, helical gear, bevel gear, helical bevel gear and worm gear drives.

—

The Greenfield Tap & Die Corp., Greenfield, Mass., has issued a revised edition of Catalog No. 38, showing the complete line of pipe tools made by the various divisions of the company. The pamphlet also contains a history of the organization, and miscellaneous tables of information such as drill sizes for pipe taps, standard dimensions, conduit sizes and wire specifications.

—

In a booklet, S. C. Johnson & Son, Racine, Wis., give brief descriptions of all the Johnson products and their uses.

—

The first number of the house organ of Julius Andrae & Sons Co., Milwaukee, has been published. It is styled "Jasco Reminder" and contains news of the company, personal notes, a collection of some of the jokes told by some members of the organization, as well as detailed descriptions of the products of the company.

New Quarters For Onguard

DETROIT, April 12—The Onguard Auto Necessities Co. has moved from its old location at 982 Woodward Ave. to new quarters in the office of the Hayes Mfg. Co., at 458 Maybury Grand Ave., Detroit.

Studebaker Dealers Gather

BOSTON, April 12—The annual conference of New England Studebaker dealers took place this week at the Hotel Brunswick, and there were nearly 100 of them on hand from all over the territory.

Rainier Price Increase

NEW YORK, April 12—The Rainier Motor Corp. has advanced the prices of its truck models as follows: The price of the 1¾-ton chassis remains $1,350.

Chassis Model	Old Price	New Price	Increase
½-ton.....	$995	$1,150	$155
¾-ton.....	1,150	1,250	100

Overland Dealers Gather

BOSTON, April 13—The annual conference and banquet of the Connell & McKone salesforce and dealers handling the Overland and Willys-Knight lines for Eastern Massachusetts took place last night. There was a dinner at the Hotel Lenox and remarks were made between the courses by both Connell and McKone, and some of the dealers from other cities. Then the entire party motored to a theatre where they enjoyed a show, the entire expense being borne by the Connell & McKone Company.

Boston Dealer Adds Truck

BOSTON, April 13—The Connell & McKone Co. has taken on the distribution of Bethlehem trucks for New England. The truck will be marketed through subdealers in conjunction with the Overland and Willys-Knight products. It was formerly sold by the C. S. Ransom Co. that has the Truxton unit.

Standard Crucible Foundry Addition

MILWAUKEE, WIS., April 15—The Standard Crucible Steel Co. of Milwaukee is erecting a foundry addition, 40 x 50 feet, to increase its casting production to the point required by its unfilled orders. The additional facilities will be available about May 15.

Coming Events

Shows

Deadwood, S. D.	City Auditorium	Apr. 15-20
Calumet, Mich.	Upper Peninsular Show, Copper County Automobile Dealers' & Garage Owners' Assn., Coliseum.	Apr. 17-20
Davis, Cal.	Tractor Demonstrations, University of California	Apr. 17-19

Conventions

Detroit, Mich.	World's Salesmanship Congress. Third Annual Session.	Apr. 24-27
Lima, O.	Ohio State Automobile Assn.	May 3-7
Hot Springs, Va.	Convention National Association of Automobile Accessory Jobbers.	June 5-12

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume LV
No. 4

New York, April 24, 1918

Twenty-five cents a copy
Two dollars a year

Now, Automobile Dealers—Here's a New Angle!

Your best mechanics have gone into the military service.

Your repair force is all shot. Have you thought how you are going to do all the repair work that is coming to you this year in addition to keeping up the service on the new cars you sell?

It's a big problem. More than one dealer has worried over its possibilities.

The worry is greatest among those who sell cars that call for a great deal of service attention to keep them running.

Naturally, the easiest way out of such an inevitable difficulty is to sell cars that don't call for such service.

Buyers much prefer cars that seldom have to go into the service station. They would rather have such a car than to have any car that needs such attention no matter how inexpensive and how easily obtained such service might be.

The 50,000 Hudson Super-Sixes in service and the records that Hudsons have made are the proofs of its endurance.

The Super-Six was built from the first to be one that would call for the minimum amount of service attention. Every car built has shown us ways by which the endurance of later cars could be lengthened. The present series express the attainment of an ideal in endurance we never dreamed possible when the first Super-Six was put out. And you who have watched the performance of automobiles know how much superior in the matter of endurance even the first Super-Sixes were to other cars, regardless of their selling price.

There is a remote possibility that you are in business in a territory not now represented by Hudson. Or perhaps you are the very dealer we have had our eyes on for some time. At any rate, why not write us if you are interested? Even if nothing comes of it, it won't do any harm for us to get acquainted with each other. You and we are going to be in business for a long time. Who knows what might result from a note from you that you are interested!

Hudson Motor Car Company

Detroit, Michigan

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DEALERS as well as owners, tell us that the actual road performance of the Nash Six with *perfected valve-in-head motor* already has established it as one of America's most sought for cars. And so, day by day, the Nash passenger car franchise, especially when combined with the franchise for Nash trucks, grows more profitable.

Nash Passenger Cars	
5-Pass. Touring Car	*$1295*
4-Pass. Roadster -	*1295*
Sedan - - - - -	*1985*
Nash Model 671 -	*1465*
(Seven-Passenger Touring Car)	

Nash Trucks		
One Ton	*Chassis*	*$1495*
Two Ton	*Chassis*	*1875*
Nash Quad	*Chassis*	*3250*

Prices f. o. b. Kenosha

The Nash Motors Company, Kenosha, Wis.
Manufacturers of Passenger Cars and Trucks, Including the Famous Nash Quad.

NASH MOTORS

VALUE CARS AT VOLUME PRICES

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MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

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"NORMA"
PRECISION
BALL BEARINGS
(PATENTED)



As the success of an organization rests upon the capacity of the men comprising it, so does the success of a machine depend upon the integrity of its parts. To sacrifice quality for price in any part of a machine, is as fatal as to place an incapable man in an efficient organization. There can be no more short-sighted fallacy.

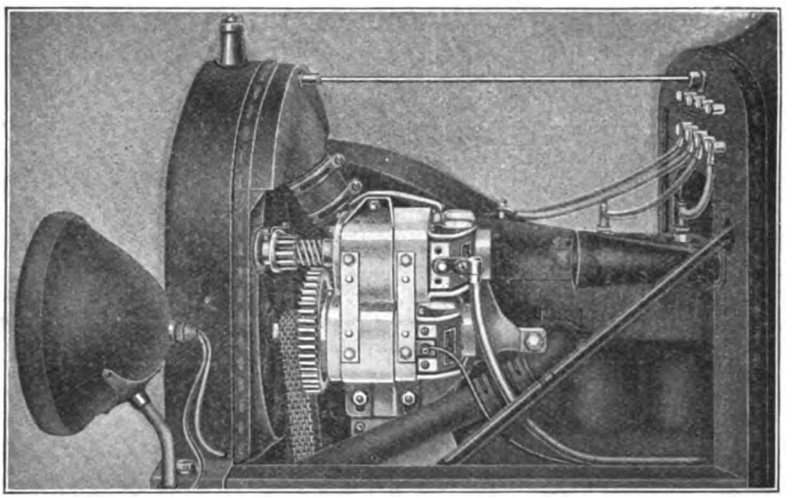
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SYSTEM COMPLETE **$85** F. O. B. BOSTON

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The efficiency of the Gray & Davis Starter has been proven this past zero weather on thousands of Fords everywhere. Dealers who have yet to learn how to make a liberal profit selling the Gray & Davis Starter and satisfy every customer should write to us today.

Booklet A-62 upon request

GRAY & DAVIS, Inc., Boston, Mass.

CANADA—UNIVERSAL CAR AGENCY, WINDSOR, ONT.

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LV New York, U. S. A., Wednesday, April 24, 1918 No. 4

Scatter Sunshine and Gather Dollars

Let's Go

MAYBE it would be a good idea right here to say a word about why this issue is now in your hands—why it was printed.

It was published to "get over" a big idea—an idea which will do us all good if we only get hold of it with both hands.

Let us say right here that the issue isn't going to talk about the war. You were talking about the war before you opened the book, you will talk about it after you close the book, you will read it in the newspapers to-day, you will pay a war tax several times to-day, you will buy and help sell Liberty Bonds and War Savings Stamps, and you will live and think and talk war, so this issue is merely going to discuss Summer Merchandising as it exists in 1918.

Of course, one of the big factors in 1918 conditions IS the war, but it is a cause and a result, with Summer Merchandising in between as the all-important issue of the day so far as motor tradespeople are concerned.

You know, the war tends to make us sad—and tense. It makes us think—which is proper and right. It is said that we Americans don't think about it enough, but there comes a time when this continuous thought makes us morbid and gloomy, and if we don't check up with a jerk at that point we pass the high point of efficiency and our war thoughts bear us down into despond and uselessness.

So this issue is, if anything, a CHEER-UP issue. It is a call to MEN to smile in adversity, to be super-civilized beings, to fight the big fight with beaming faces, and to swing into business with the smile that turns a loser into a winner.

In this issue there are many ideas for Summer Merchandising. Each one of them is a good thought, filled with the possibilities of bigger business than you had even in 1917 and 1916, when things were different.

All that is necessary—and it is necessary—is that you put yourself in the right frame of mind right here as you read this page. Say to yourself:

"I know my country is at war. I know it is a serious thing. I know I must do all I can to help win. But I also know that if I don't put my shoulder behind my business harder than ever before, I am not going to be much use in any way.

"I know I feel blue at times. I wonder if the war will ever end. I get pessimistic and in a blue funk. But I'm not going to wonder about the end of the present situation, and I'm not going to get blue. I'm going to cock my chin just a little higher, smile as only a real man can smile when things go hard, and buckle into 1918 business.

"I'm going to get all the good ideas I can. I'm going to do things I never did before. I'm going to efficiencyize my business along the lines of which I have thought for months.

"I'm going to cheer up myself and everybody else. I'm going to make some money. And I'm going to pass it around, too. I'm going to make things hum.

"Let's go!"

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HANS FOOLISH

THE PROPAGANDA MAN

HAVE you heard the song of Hans Foolish, the man who believes business should be stopped?

Have you heard him sing his latest ditty about how people should stop spending money and stop all their activity?

Have you seen him in his latest sketch entitled: "How Does Father Do It? The Factory's Stopped Running, but the Old Man's Getting Fat?"

The other night Hans Foolish gave an interesting dissertation on the hard time the Poor Working Girl has getting along because of the high cost of living, and at the same time he blatted considerably about how people ought to stop spending money in the stores where the Poor Working Girl earns the eight per with which she buys her eats.

Hans also wrote an interesting—but very phony—article on how every one should cheer up and win the war, and in the same breath he said they should stop buying motor cars and going to Coney Island because that was pure pleasure and an extravagance. He probably figured the same amount of amusement could be got out of a funeral and that this would be cheaper because no admission is charged.

And maybe he figures that people can be kept cheerful by pulling out their finger nails or knocking their teeth with a tack hammer.

He's a smart fellow, this Hans Foolish. We don't pretend to be smart enough to keep up with him.

One thing we will admit, and that is that he is smart enough to make a lot of people believe the same way he does. Maybe you've been listening to him.

We'd like to ask him a few questions however. Here they are:

In America's factories are countless workmen who have homes, partly or wholly paid for, and who have families, with kids in school. If the factories stop what are these people going to do?

Supposing there were a job at a shipyard or somewhere else for the Old Man. How could he pull up and move there? And between the time the factory shut down and he got his other job, how could he live?

And how could he pay for his Liberty Bonds, which the factory is financing for him?

Supposing people stopped buying in stores. What would the store girls do? Where would they go for jobs?

And what would become of the companies that run the stores?

And the companies that own the store buildings and have to rent them or else go into bankruptcy?

And the banks that handle the stores' money?

And the men and women who work in them?

And the men and women who work in the factories that make goods for the stores?

And the raw materials businesses that supply the factories?

And all the workers all along the line?

Only a few can take part in the real work of war. The rest must back up the front line men and finance them. And without industrial and merchandising activity there can be no financing.

If no more motor cars were made what would become of the thousands of workers who would be thrown out of work in factories, garages, salesrooms and service stations?

What would happen to the people who depend on motor vehicles for transportation in our great transportation emergency? And even the people who use cars for recreation purposes in order that they may be more efficient for business purposes?

Hans says everybody should do nothing but WAR WORK. That's all right, Hans, but it can't be done. We haven't room here to figure it out for you but——

The real American to-day is he who wreaths a smile around gritted teeth and becomes two men where last year he was only one.

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Get a Muffler



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Make This Summer *Better Than* Last Summer

UP in Vermont is an old farmer named Si.

Si raises buckwheat.

One year he had a whale of a crop.

He tried it the following year.

The crop was not so good.

"Not so good this year as it was last year, is it, Si?" remarked a neighbor.

"No," speculated Si, "it ain't as good as I expected, but I didn't expect it would be."

TO say, "Make this summer better than last summer" sounds a bit bombastic, doesn't it?

But is it?

Let's talk it over.

Your major business is selling cars. Right now the demand is good. People are buying. You are driving cars from the factory probably. You are selling all you can get.

But the factories are not making as many as they did last summer. So, no matter how good the demand is, you won't sell as many as you sold last summer unless you are a favored dealer and get a bigger percentage of cars than you would get in normal times. Isn't that about right?

Now, then, how are you going to make this summer better than last summer?

"It can't be done!"

Wait a minute, Si! Wait a minute! Let's figure a little bit.

Could you make this summer better than last summer if your volume of business were greater and the overhead no heavier?

Surely.

Very well, then. Our problem is to figure out a greater volume of business without adding too much to the overhead.

Make Money on Used Cars

So—let's take up as a starter the question of used cars. Heretofore you may have considered used cars a necessary evil. You may have been satisfied if you could trade and not lose too much money. Why not trade and make some money this year.

It CAN be done, because some dealers are already doing it. It is simple to say and not so hard to do: Trade at a right price, fix the car up, sell it at a price that covers the allowance, repair cost, cost of handling and commission for the salesman.

This is being done. Why not do it? All that is needed is a PLAN for handling the business and ADHERENCE TO THE PLAN. Used cars should NOT be sold in poor condition. It hurts your entire business. Fix them up. Sell them at a profit.

If you trade on every eight sales you make you handle 18 cars. If you make a profit on 18 cars instead of a profit on 10 and a break-even on eight you have almost doubled your business this summer, haven't you?

There is the demand this summer for these rebuilt cars. If you can't get new cars why not sell used cars? What do you care, so long as it's good business and you make money at it?

Sell a Truck

And now, you've got a salesroom with plenty of room. You have a service station, sales organization, office force, and all those things that are necessary to selling. Let's make them do more work.

Let's sell a truck. Every dealer can't get an agency right away and sell a lot of trucks this summer, but every dealer can TRY. Look over the truck field. Pick a good one. Read the truck sales information farther back in this issue of Motor World and see if you can't dispose of some trucks.

You get a prospect list, make calls, work just the same as on new car sales, with some variations, and the truck business fits in nicely.

This increase in gross volume does not begin to make a proportionate increase in your overhead. Even if you are a big dealer with a big sale of cars why not get a little more business?

Money in Accessories

IF somebody came and dumped an armful of money into your cash register without any effort on your part you would call that a pretty good increase in volume, wouldn't you? Well, here's how it's done.

The force that is going to dump this money in your cash register is one that is puttering around the place every day—doing nothing. It is the desire for accessories of the car owners who frequent your place of business.

Car owners want accessories. They will buy a few from the hardware man or you or the department store or whoever sells them, but they will buy MORE from you if you make an effort to sell them, for the car owner is accustomed to buying things from you. Furthermore, he is in your place all the time and you always have him to work on. He goes to hardware and other stores seldom. You see him every day.

Therefore, get a showcase or a runway cabinet, about which there are ideas farther back in Motor World this week. This cabinet will cost very little and it will do a lot of sales work at no cost at all.

Make part of your place into an accessory store. Make it look like a store. Arrange for some one to sell accessories. Make a business of it. Instead of letting a man buy five gallons of gas and drive out, wiggle a windshield cleaner around on his windshield and get some more of his money.

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Campaign NOW for Leadership THEN

The discount on accessories is almost twice what it is on cars—and there is no service.

Some of America's biggest dealers have found a source of hidden profit in accessories. It applies to the biggest dealer and the smallest garageman.

This added volume of business adds almost nothing to the overhead.

Sell Trailers

Take a look out the window and see the number of horses delivering groceries, laundry and other things. And think of the number of grocers and laundrymen you know who have cars standing idle all the week. Little trailers hitched to these cars would make the cars trucks by day and passenger cars outside of business hours.

Furthermore, there are many small business men who would buy a used car and a trailer and provide themselves with a passenger and delivery vehicle. There would be a double sales argument for the combination. The uses of the trailer are manifold. A little figuring by a good salesman would reveal great possibilities for business. And there would be no service attached.

And the Farm Tractor

No matter where you are located you should not imagine that there is nothing for you in the farm tractor. On other pages of Motor World are stories relating to this new form of dealer activity.

To sell the tractor you select an agency, ignoring the great cry raised by some that tractors are not standardized and that dealers should wait to see what is going to happen. What will happen to those who wait is that the business will be sewed up by those who started right NOW.

No great additional overhead is required for handling the farm tractor. Some development or expansion of your sales department may be necessary, but the increased cost will more than be taken care of by the added profit.

New England bought a thousand last year. The East needs them as much as the West. The sales work is not so expensive as new-car sales work, because the wear and tear of excessive demonstrating is eliminated and there is no trading and costly service.

Now, if you can sell 20 or 30 tractors in a year, listing at $1,000 each, and net $100 on each, that $2,000 or $3,000 would figure in nicely, wouldn't it? You see, this matter of volume is not impossible.

Sell Farm Lighting Systems

And here's another added—the farm lighting system. It consists of a gasoline motor, a generator, set of batteries, switches, etc. They sell for about $400. Every farmer ought to have one.

Of course, this is not exactly in the line with motor cars, but it is gasoline apparatus, and the motor-car dealer is a logical man to sell it. Dealers are taking them in in some sections and find them a profitable business.

The principal expense is one or two demonstrating outfits, which should cost about $1,000—maybe less. Thereafter it is mostly a question of personal effort.

In case your present organization has leeway enough to handle these outfits your overhead is increased not at all; but, in any event, the increase will not be at all in proportion to the profits of this business.

In considering these points we nearly forgot to mention the principal part of your business, which is new-car sales. Maybe you could get a few more cars and sell a few more cars by expending a little more effort and operating a trifle more intensively along sales lines.

Every dealer should do this. If he sent out a few sales letters last year he should send out more this year. He should more thoroughly scrutinize his prospect lists and get every last dollar there is in his new-car business.

Garaging the Transient

There is going to be touring this summer. Every tourist who stops over night in your garage is that much added revenue.

Road signs are a cheap form of getting business, and they are very effective.

Careful attention to tourist trade, which means personal attention rather than the spending of money, will build added profits on this side of the business.

Price Cutting

There is no excuse this year for price-cutting. There never was any GOOD excuse, and this year there is none at all. People want more goods than there are, so why should any dealer shave a price?

Every dollar you DON'T cut is equal to more than one dollar earned.

And in many departments of your business there are ways you can save money. You can cut down in many directions. Make a study of this.

More Business in 1918

Don't you think that the employment of some or all of these means of getting greater volume will make this summer better than last summer?

Expect it will be good and make it better than you expected. What you WILL you will get.

Don't you still believe you should hold to the sale of cars only just because that has been your custom in the past?

Don't you see that the dealer who gets on this automotive basis NOW is going to be ready to assume big leadership when things go back to normal?

Not only will he have kept his business to its normal volume and better during the present, but he will have provided a foundation on which he can build bigger than he may have dreamed.

Campaign NOW for leadership THEN.

We Don't Care

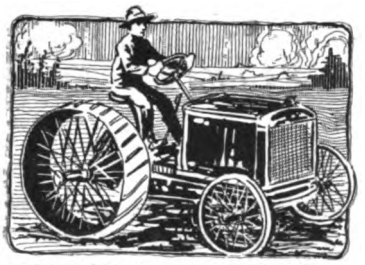
WHEN Motor World gets out its special numbers and prints its various extra features our readers often write in and tell us how they liked this, or that, or the whole number, or make some other comment.

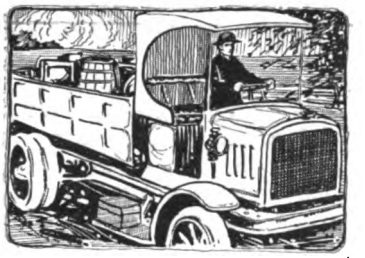
Sometimes they sort of apologize for taking the liberty of writing on such a subject, but if they knew how pleased a publication—which, after all, is very human—is to receive letters from its friends they would drop all apologies and make all the comments they please, both adverse and favorable.

The whole trade has aided in getting out this issue. It is as much yours as it is ours. Therefore, if you like it you have a right to say so, and—you may rest assured—we shall be glad to hear about it.

So—if you find something that appeals to you as worthy of comment, or if the idea of the whole issue appeals to you, let's hear about it. We won't mind a bit.

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The

Automotive Dealer

and the

Motorized Farm

What They Mean To One Another





WHAT does the motorized farm mean to the automotive dealer?

Profits! Bigger business! A widened field of activity.

What does the automotive dealer mean to the farmer?

Profits! Bigger Business! A widened field of activity! More joy in life! Comfort! Better health! Happiness! The solution of the farm help problem and the problem of why boys leave the farm.

Who must make the first step in establishing this relationship that is so profitable to both?

The dealer, for he is the man with the goods to sell. If the dealer doesn't take the first step the farmer may—later on—DEMAND these goods of some other dealer in some other trade, and then some one other than the motor car dealer will reap the profits that the automobile man can have if he will only go after them NOW.

This all sounds like a catechism, doesn't it? It isn't. It is just a plain way of stating facts.

The facts are these: An era of better living and better work is opening up on America's farms. The rural man has seen the beginnings. Eventually he will step into line without being urged. He will step into line much sooner if an aggregation of live dealers gets after him and sells him the things he ought to have. Then the farmer will thank the dealer and there will have been established a firm friendship that will bring the dealer future business.

Time was when a farm home was a house—and that's about all. There was poor heat. To-day farmers have furnaces and steam heat.

They used to get to town once a week in the summer and often not at all in the winter. To-day they have trolleys by the door and cheap cars—and good ones, too—that make the city only a few minutes away.

Communication was difficult. To-day there are networks of telephones that enable one housewife to gossip with another. The barriers are broken down.

Living conveniences were not conveniences at all. To-day there are bathrooms and hot water. These make for better health and greater cheerfulness. Thousands of farms have heat these chilly spring days when thousands of New York apartment dwellers are shivering because the steam has been turned off for the summer.

The housewife used to break her back over a washtub. To-day she has an electric laundry in the basement.

Illumination used to be by smelly, weak, kerosene lamps. To day there are electric lights, run by the farm lighting systems that *the farmer will buy from some one else if the motor-car dealer doesn't sell them.*

Water used to be pumped from a cistern or well by hand. Now, in the evening, when the lighting outfit is in operation, a lofty supply tank is pumped full for the next day's business. Note that the farmer says "next day's BUSINESS" and not *"work."*

The farmer used to have to go to town to get repairs made. To-day he has a repairshop with more machinery than there is in some garages, all run from the same engine that pumps the water and lights his house.

He used to carry a feeble kerosene lantern to the barn. Now he snaps a button and the farm yards and barns are instantaneously lighted.

Churns were once great exercisers. Now they require only looking at once in a while to see if the butter has come.

Cream used to be skimmed from the tops of pans that had set in the pantry. To-day a power-driven separator takes the cream out without delay.

Buck saws have been replaced by power saws.

All the farm appliances—corn shellers, fanning mills, ensilage cutters, etc.—are run by power.

Instead of plodding after a plow the farmer drives a tractor.

The same tractor cuts his grain and harvests his crops.

And when there is anything to be taken to town the farmer makes the trip in a fraction of the time with his motor truck. And he saves by using the truck. Hogs won't lose so much weight while riding to town in a truck as they will if carried in a wagon.

When the farmer gets through work at night he has a daily paper which he reads by electric light.

And in the cool of the evening he takes himself and the family out for a ride in his motor car. Or he runs to town on an errand, which is also a recreation trip.

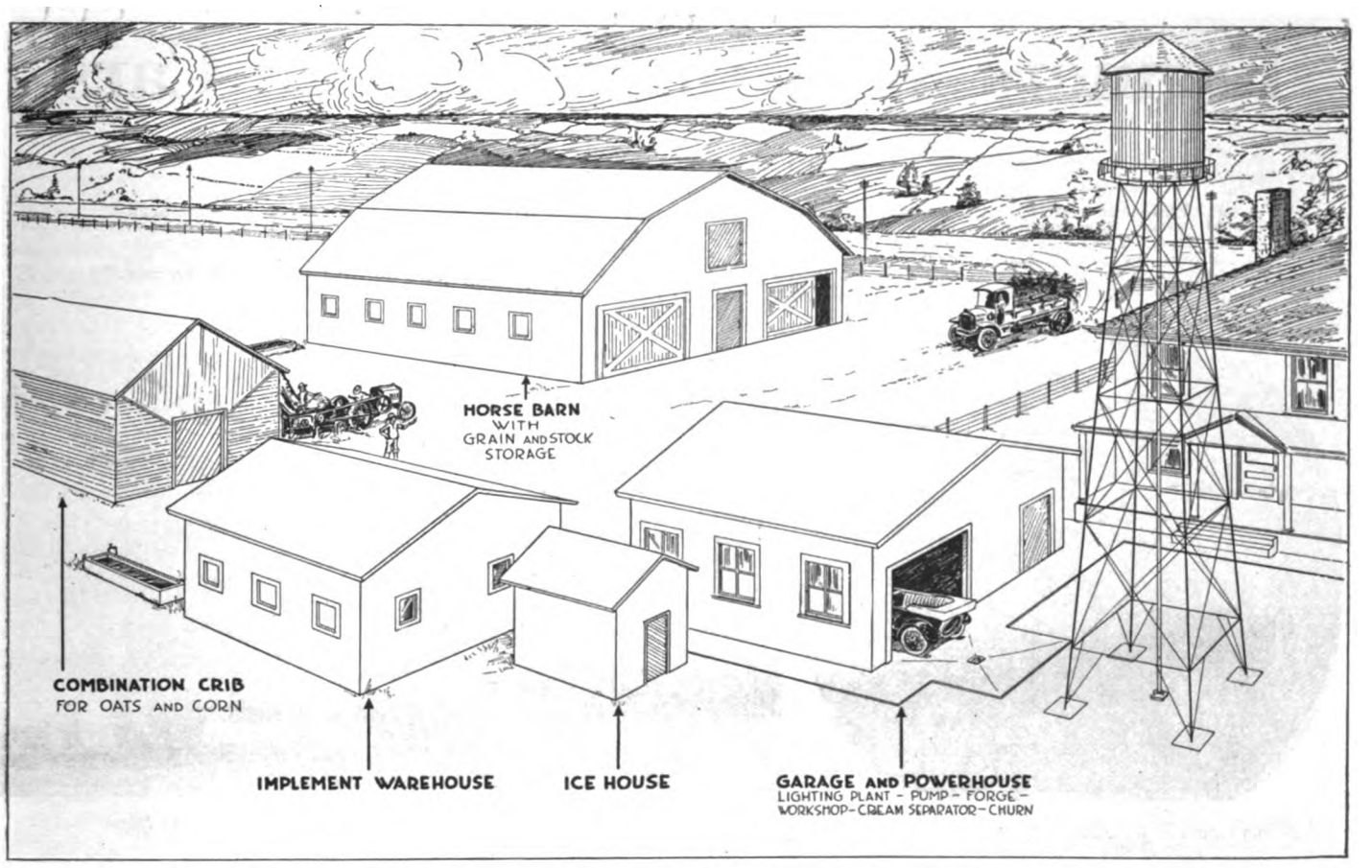
The old days are passing. They will pass more rapidly. *The farmer will NOT be without these things that make life more livable and that let him do the work of several men with less effort in less time and at a smaller cost.*

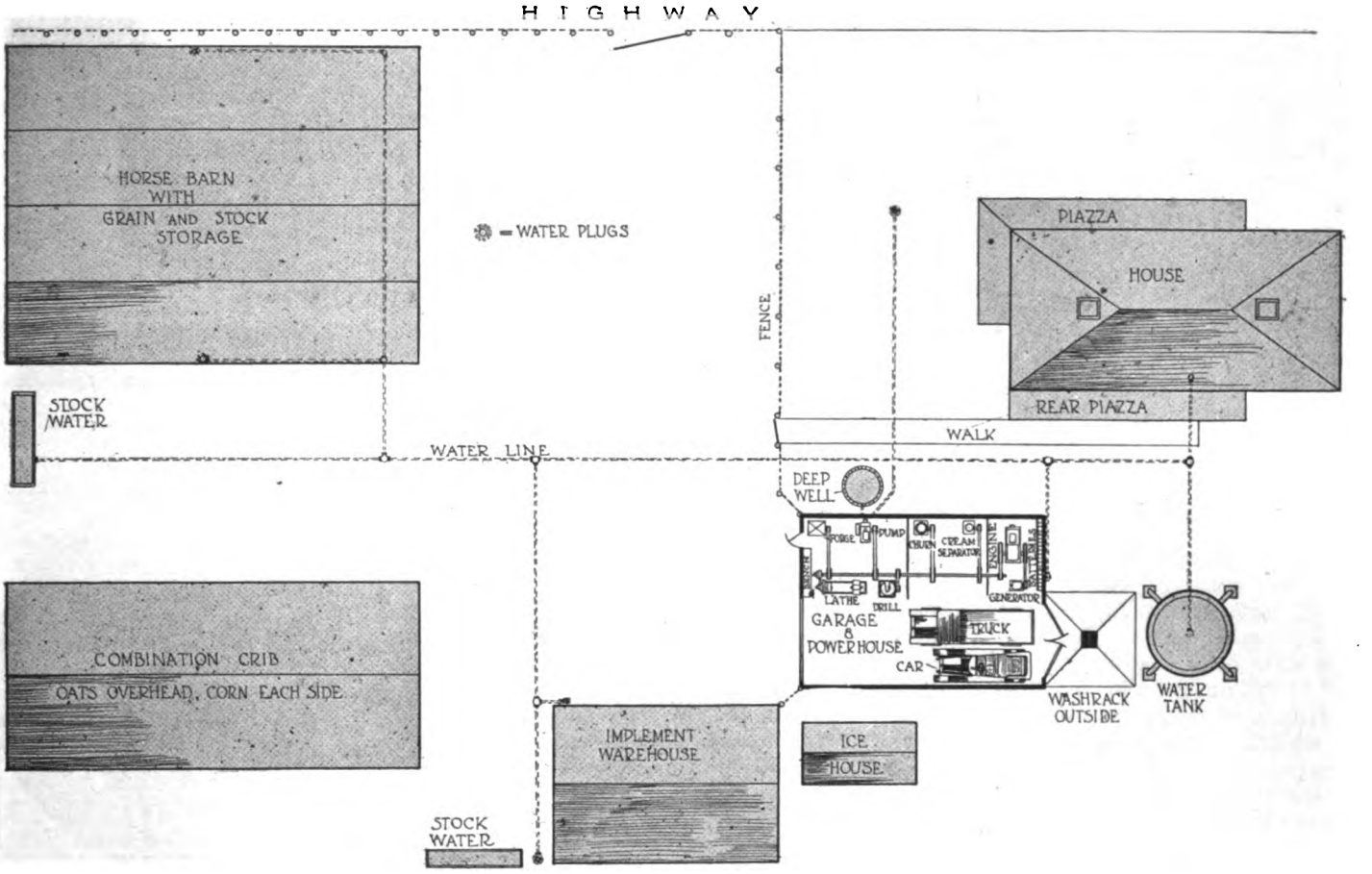
All that has been said is more or less a composite picture, made up of points taken from many farms. Few farms have ALL the good things mentioned here, but the farmer who HASN'T them is a prospect for *all that he has not.*

The important point is this: Get busy NOW and become a motorized comfort merchant before the farmer needs things so badly that he goes to somebody else for the goods you may sell him IF YOU ONLY WILL.

This picture is written with the thought of building profits for YOU.

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This motorized farm is located in Illinois. One engine supplies power for all the equipment in the tool room and for the farm lighting plant. An electrically operated laundry is in the basement of the house. A cream separator, churn, etc., are in the power house. The house, garage and all the barns are electrically lighted.

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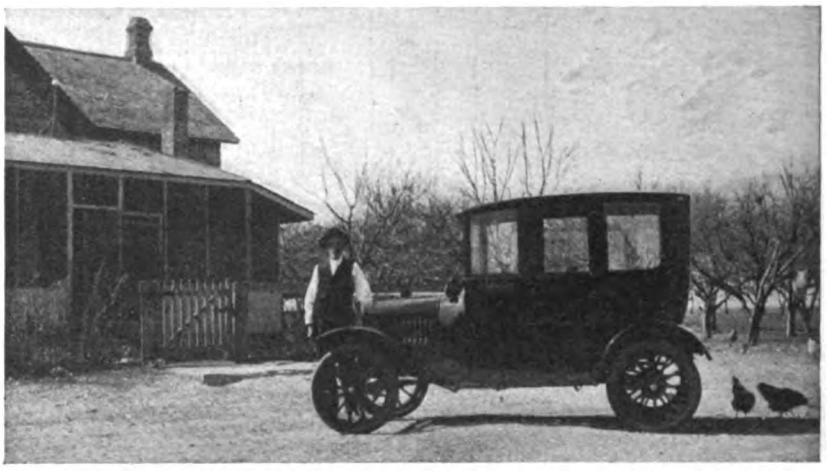
Farmers Will Buy Enclosed Cars

These Pictures Prove It

LATELY the trade has been speculating as to whether enclosed cars can be sold to farmers. This page ends the argument. They can. Here are six farm homes with their sedans—and there are several more we didn't have room to show. These are all Fords—but if a farmer will buy a Ford sedan isn't it probable he will buy any other sedan if you try to sell him? Furthermore, we have letters from the men who own these cars, and they all say they're so solid on the enclosed car idea they'll never be without one. No wind, no rain, no dust, no dirt, no cold, no heat—just comfort. Here are the pictures, and the names of the dealers who sold the cars.



Owner—James Renshaw. Dealer—F. H. Hagel, Rochester, Minn.



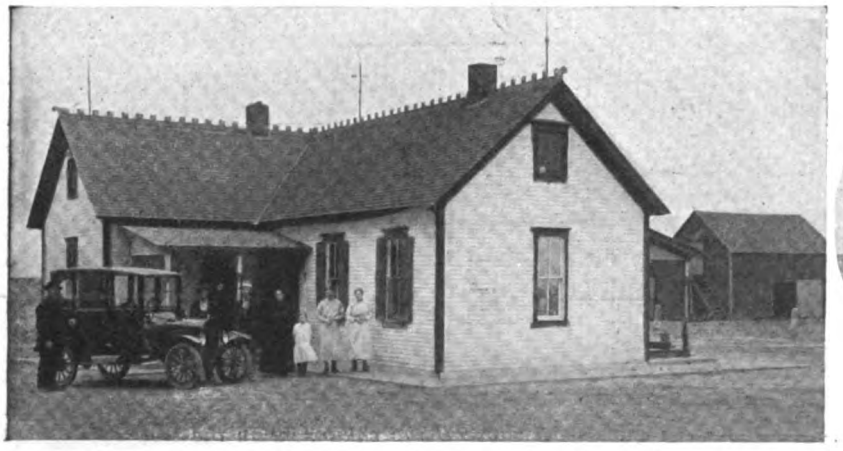
Owner—Joseph Kraft. Dealer—G. L. Baker, Holyrood, Kan.



Owner—Gus H. Henson. Dealer—Auto Service & Sales Co., Kiowa, Kan.



Owner—John Wamhoff. Dealer—G. L. Baker, Holyrood, Kan.



Owner—Christ Legleiter. Dealer—A. G. Shiney, La Crosse, Kan.



Owner—Hugh Moran, Nekoma, Kan. Dealer—A. G. Shiney, Rush Center, Kan.

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Sales Ideas of Successful Men

They Offer You Their Skill

HOW often have you seen a salesman who is able to "put 'em over" when they seem hard to you? You wonder how he does it. He has little "tricks" of his own. He has worked out sales moves that "get 'em." And here they are. MOTOR WORLD asked a large number of successful salesmen for tips on their methods, and each man gladly told his best methods, so that his fellow salesmen might be helped in selling. On the following pages are scores of these ideas—for you. You should study every one of them. Some single one of them may be the turning point in your career as a dealer or salesman.

Fundamentals of Your Sales Plan

1—Determine to study selling and to use every good idea you can get hold of.

2—Study your goods. Know what you're selling.

3—Determine to plan your sales work.

4—Acquire a prospect list. Names will be secured from people who call, from a review of your territory, from lists of cars of other competing or near-competing makes in your territory, from newspaper stories, probate court records, club lists, etc.

5—Plan a series of mailings, made up of letters, booklets, literature and anything you can get or write that helps influence the prospect.

6—Keep a careful check on your prospect list. When one of your letters gets a rise out of a prospect see that the card has proper handling. If a man has already returned one of your return postal cards don't send him another by mistake or the sale may be killed. Keeping a careful record on the cards is time well spent.

7—Operate the personal sales work of the salesmen under the guidance of a manager. Management is necessary if effort is to be co-ordinated. The sales force should work as a unit and not as independent individuals for best results.

8—Put the right atmosphere into your salesroom. Make it look as well as the cars you sell.

9—Hold sales meetings once a day.

Here Are the Ideas

Studied Medicine to Sell "Doc"

A prominent surgeon refused to show interest in a car I was trying to sell him. I learned he was deeply concerned about the welfare of a patient who was to undergo a very serious operation. I had another physician friend, so I borrowed his books on the subject and got him to give me all the pointers he would. Thereafter when visiting my prospect I talked surgery. After the operation had been performed I called and congratulated him upon his success. He asked me if I ever had studied to be a physician. I told him "no", but that I became convinced I would have to become interested in it in order to get him interested in the car I desired to sell him. He saw my position and bought the car. "Doc" is my nickname, so this time I capitalized on it—M. H. Green, sales manager, Ralph Hamlin, Los Angeles.

"Come On; Have It Over With"

When it comes right down to the point of finishing up the deal or letting it run on, I'll say something about like this: "Well, now, you've been looking at automobiles for quite a while, devoted considerable time to it and done some worrying; now, why not get all this off your mind and settle it by signing this contract?"—S. G. Buckner, Earl V. Armstrong, Inc., Los Angeles.

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Know Status Beforehand

If I go out after a prospect, I don't give him a chance to plead that he can't afford a car. I get a line on whether he needs a car and can afford one before I go to see him.—W. W. Barnett, Denver.

Let Prospect Talk First

While my approach varies, I usually get the prospect to talking first. If a man looks as if he would be slighted by my waiting, I start asking a bunch of questions about where he is from, kind of car he drives, etc.—H. M. Sayer, Carter Motor Co., Denver, King and Dort.

"Saves You Time"

If a prospect says he can't afford a car, I bring out the value of his time.—H. M. Sayer, Carter Motor Co., Denver.

Scientific Co-operation

If two or more members of a family are looking at cars and one gets wandering away, I get another salesman to round him up and keep him interested in something while I handle those that pay attention.—H. M. Sayer, Carter Motor Co., Denver.

Let's Him Go

If a prospect declines to give us any encouragement after one ride —to give him a comfort impression —we let him alone and go after another prospect.—J. B. Irving, S. B. I. Motor Sales Co., Denver, Hupmobile.

That First 10 Seconds

My best sales move is a straightforward, pleasing approach that influences a prospect to start expressing his views without my asking what he wants. I give approach the most vital importance next to actually getting the order signed up.—R. C. Peete, Cadillac Motor Co. of Denver.

Hurry 'Em Up

My strongest line of approach is to jolt prospects with the idea that car prices are likely to increase further in a short time, and that there is hardly any chance for a drop.—A. M. Platt, Platt-Fawcett Motor Co., Denver, Paige.

Can't Afford It

If a prospect says he can't afford a car, I don't dispute his word—there are too many prospects that can afford one and don't hesitate to admit it.—A. Tom Botterill, salesman, Denver.

Take the Hard Spots Out of Selling

"That Other Car——"

If a prospect wants to talk about some other car, I handle the subject so that I show him I don't pretend to keep posted on any car we don't sell, but that I know our own line thoroughly and believe in it absolutely.—A. Tom Botterill, salesman, Denver.

Price Is High

If a prospect objects to the price of a car, I show him actual figures on gas mileage, tire mileage, etc., and impress upon him the comfort and service he gets at low operating and upkeep cost.—A. Tom Botterill, salesman, Denver, Pierce, Hudson and Dodge.

Pay as You Ride

If a prospect says he can't afford a car, but I believe he can and that he needs one in his business, I just say, "Don't let that bother you any—pay as you ride." That usually starts questions about terms and gives me the chance I need—E. J. Johnson, Denver, Chalmers.

Sell the Greater Value

If a prospect objects to price, I just show him where the car is worth more than I'm asking.—F. C. Goff, Linger-Goff Motor & Supply Co., Denver, Mitchell.

Sell Low Upkeep

If a prospect talks high price of car, I show him low cost of upkeep.—John Graham, Colorado Motor Co., Denver, Reo.

Meeting Style Arguments

If a prospect objects to any feature of appearance, I tell him car is built for durability, and show him definite points.—John Graham, Colorado Motor Co., Denver.

Car Is Too Heavy

If a prospect says car is too heavy, I take him back to the stockroom, show him heavy parts and explain why they are made heavy for his benefit. I sell as many cars there as in the salesroom.—C. E. Ward, Colorado Motor Co., Denver.

He Said He'd Bought

My prospect said, "No use talking to me! I've bought." I asked him courteously what his choice had been. "Well, it's between a ——— and a ———." I ventured the thought, "Then let *us* get together." We did, and I sold him a Chandler sedan within fifteen minutes. I struck the psychological moment.—W. B. Christie, Achen Motor Car Co., Milwaukee.

Learn the Use

It pays to find out something about the specific use to which a prospect intends to put the car. In competition with a 4-cylinder car listing at $350 less than our six, I won out because I showed my prospect that our car was better for his principal purpose than the other, even at the higher cost. I proposed a trip to his summer home and back, nearly 120 miles, but the car sold itself, so to speak, before we were half way out. He forgot all about the other car.—W. B. Christie, Achen Motor Car Co., Milwaukee.

Didn't Say "Job"

In seven lengthy sales arguments with my prospect, I studiously avoided the use of the word "job" because I once overheard him mention his utter disgust with the term, and when he handed over his check, he told me that was one of the reasons why he bought from me.—Edward V. Oehler, Hoppe-Hatter Motor Car Co., Milwaukee.

Know P.'s Financial Status

A good friend of mine is at the head of a credit investigating organization of high standing and I casually learned that Mr. So-and-So, my prospect, might find it difficult to make a full cash payment if I should sell him, but was "good as gold" for the balance. In closing him, he started to get away from me on the plea of buying a less expensive car, but I used my credit information to such good advantage without embarrassing him that he was tickled to death to take advantage of my deferred payment proposition after it was suggested to him.—(Doesn't want name used.)

Dressed Up the Service Manager

My suggestion to our general manager that the superintendent of our service department might profitably be taken out of his greasy overalls and dress in a business suit, with a white collar

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every day made a big hit with our patrons and brought many new ones. It also discontinued the practice of most of the old customers of over-running the office for attention, only to be referred to the overalled foreman. There was a new feeling of respect all around, including the workmen in the shop, which paid big dividends on the investment.—H. A. F., Milwaukee.

Meeting War Arguments

Questions now come up whether the prospect should spend his money for an automobile these times and then again the question comes up if the purchaser will be able to buy gasoline. So we now have to present a lot of facts and figures on the gasoline supply in order to induce the prospect to buy a car. It is often necessary to argue that every one should spend money these days in order to keep labor employed and in order to keep business going.—I. R. Madden, Capital Motor Car Co., Columbus.

Talks Low Upkeep

Low maintenance cost is the best feature that I use in the sale of cars these days. With the country at war and every dollar required to do its full share toward winning the war the best selling idea at this time is to convince the prospect of the low cost of maintenance. So I put that idea to the fore in selling cars. We often heard earlier in the season of the expected gasoline scarcity, but we hear very little of that now.—Wilbur Winders, Winders Motor Car Co., Columbus.

Meeting the Pessimist

My idea in selling an automobile is to have an answer ready for each objection or reason a prospect gives for not buying. In other words, if a prospect says that since we are in war he does not know whether he should spend the money for a car, I sit down with him and say, "Now, if you do not believe that you should buy a car now we don't want to sell it to you." Then I go ahead and show him why he needs a car now even worse than if we were not in war. I show him how bad transportation is and how much better he can look after his business by means of an automobile.—O. C. Belt, Belt-Franklin Co., Columbus.

Clinching the Mechanic

When the prospect is a machanic employed at a large factory, I always call attention to his knowledge of a gas engine and say, "I knew just as soon as you raised the hood on my car the sale was clinched," and the name is then secured to the contract.—H. K. Dobson, president, Everet Motor Car Co., Columbus.

Use the Ideas of Successful Salesmen

Ride as You Pay

I find that the plan "ride as you pay," which was originated by myself, has been quite a stimulus to the sale of motor cars. It is the pride in the purchaser that will make him meet the payments, even if he has to forego many things in his home. He will not let his neighbors see that his car is taken away and thus our losses are held at a minimum.—H. K. Dobson, president, Everet Motor Car Co., Columbus.

Don't Let Him Wander

I keep my mind on my business and also on the prospect, and don't encourage him to let his mind wander.—Frank L. Paxson, salesman, Auto Sales Corp., Denver, Franklin.

Analyzes Failures

I do not analyze my prospects. I analyze my mistakes in losing them if a sale is lost. Confidence is vital. If I am unable to obtain the confidence of a prospect, a sale is impossible. I do not know of any set rule other than to attract favorable attention and then inspire confidence.—T. S. Bunn, Bloomington, Ill.

Assume the Affirmative

In the endeavor to interest a prospect, assume the affirmative. Give the impression that the prospect is in the market for the car and that you know it. Never approach him negatively. He may deny that he has ever thought of such a thing but he will feel more or less flattered by the assumption.—D. U. Smith, Bloomington,

Study Each Prospect

I study my prospect closely and am careful not to antagonize him if I find that his mood is not just right, but bide my time when confident that he will not buy until later. Most men are governed to a considerable extent by the preference of their wives. Once her favorable attention is secured, it is usually less difficult to win over the husband.—Owen E. Pattison, Bloomington, Ill.

Ride His Hobby, Too

Every car buyer has some weakness, some hobby, some point, which if known or discovered through physical or mental analysis, helps to bring the contract and the buyer's signature into juxtaposition.—W. L. Hinkle, Bloomington, Ill.

That Price Objection

If prospect objects to price, I point out the big depreciation loss of buying a cheaper car and then trading it in, and show him the general tendency of owners to keep getting into a higher-priced class.—D. P. Hogan, Cole Motor Sales Co., Denver.

Make Him Think

A direct question that compels a prospect to think in order to answer gets his attention back where I want it. I usually ask him what car he is driving.—D. P. Hogan, Cole Motor Sales Co., Denver.

When His Mind Wanders

If a prospect lets his attention wander, I say, "I know you're not paying any attention to me, but I'm going to go right ahead and tell you about that wonderful feature of the factory, anyway." And he usually comes back with a smile.—A. M. O'Meara, O'Meara-Green Motor Co., Denver, Ford.

Appeal to Emotions

My best way to reach a prospect is to appeal to some emotion—pride, comfort, etc.—rather than to his intellect. I stay away from technical talk as far as possible.—W. J. Haughey, sales manager, MacFarland Auto Co., Denver, Buick.

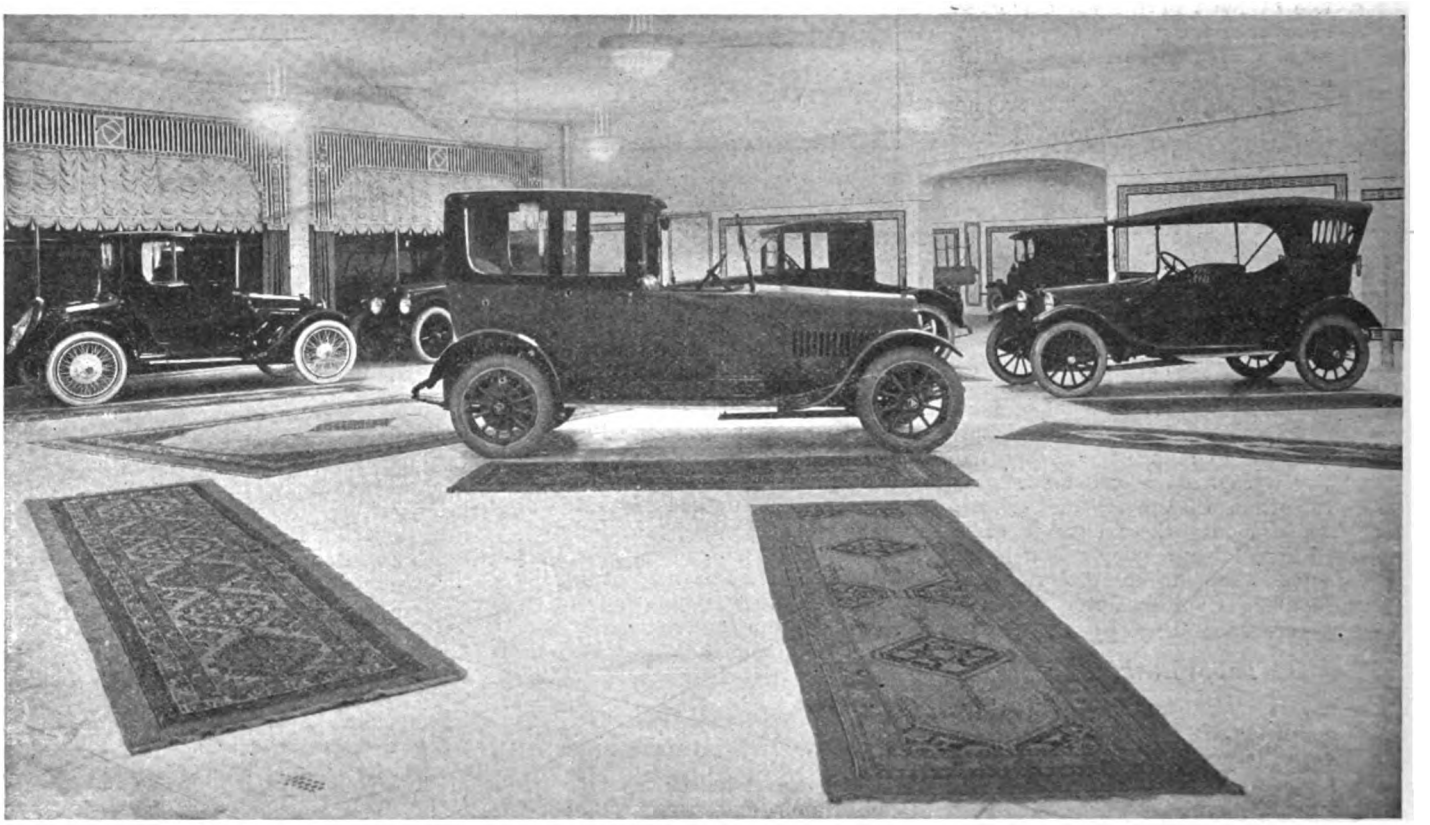
Prospect an Investor

A strong point to win confidence is a clean record of absolutely one-price dealing. I always treat prospects as business investors and not bargain seekers, and I use this one-price reputation to impress this attitude toward them.—W. J. Haughey, MacFarland Auto Co., Denver.

More of These
on pages 18 *and* 19

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Make Your Salesroom Look the Part



Looks like a ground floor salesroom on Broadway, doesn't it? But it isn't. It is the second floor salesroom where Arnold continues the atmosphere that permeates the whole structure. Trucks are sold in the salesroom shown through the door in the distance, slightly at the right of the center of the picture



Green, orange and black are worked into a wonderful design, supplemented by draperies of gold-brown silk. The building is in the shopping district. Note the busy traffic cop out in front and, diagonally across, a large women's outfitting store

HAROLD L. ARNOLD, Los Angeles, realized his merchandising ideal when he set this car sales building in the middle of the shopping district.

He believes the same principles that apply to other business apply to selling cars. Attractive display is just as essential for cars as for dry goods.

He also believes the successful dealer must meet all the demands of all the prospective purchasers. He must be automotive. Therefore, he sells the Maxwell, Columbia and Hudson and Vim and Republic trucks.

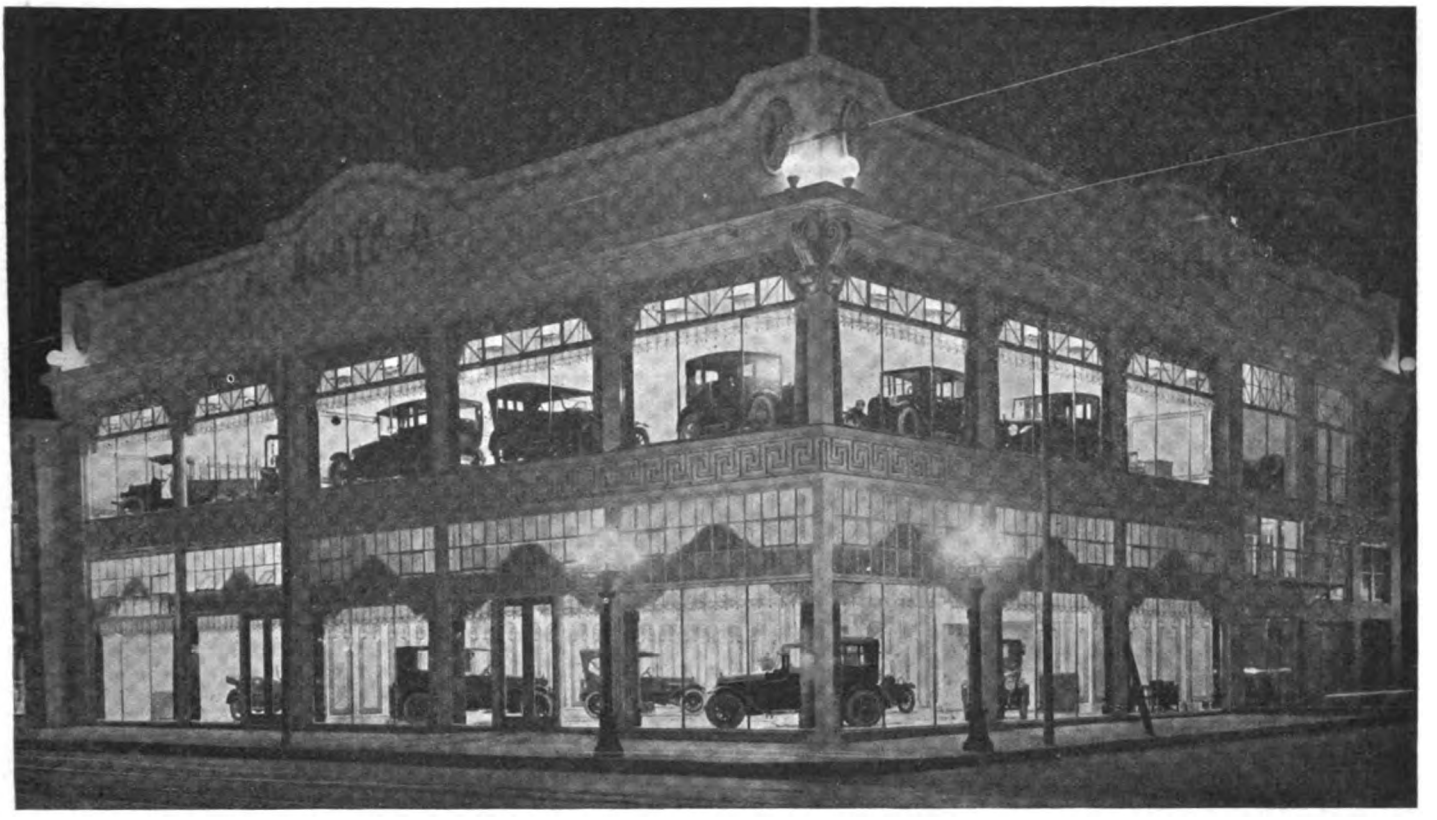
He is a big factor in the California trade, and until he recently severed his relations with the factory was said to be the biggest Dodge distributer in the United States.

Before erecting this building he tested the location for nine months by renting a salesroom across the street and ran a separate sales organization there. It worked. So he opened up the establishment that is illustrated on these pages.

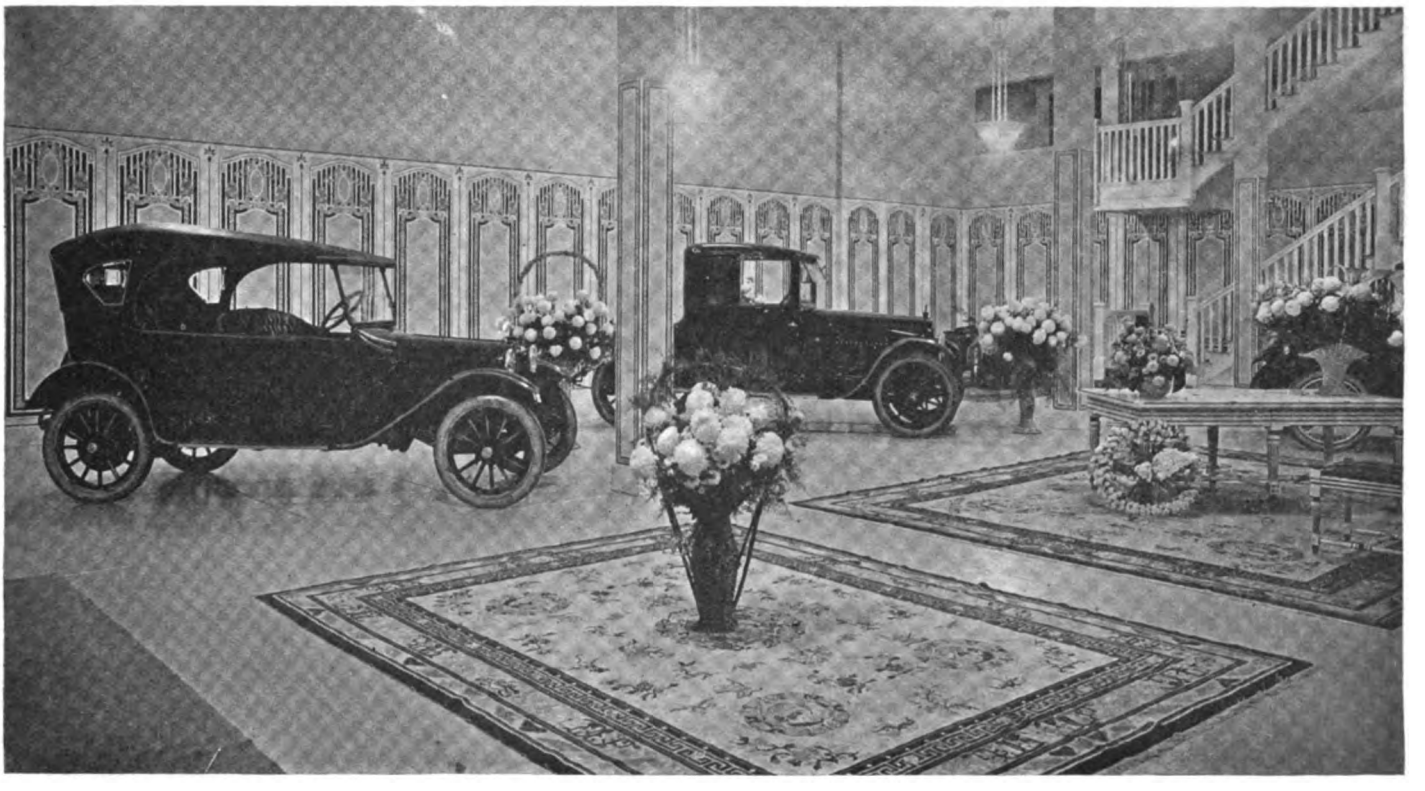
In addition he has used cars, parts and service on Motor Row, giving him all told 75,100 ft. of floor. This building is 100 ft. on Seventh Street and 105 on Grand Avenue.

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A Good Car Is Worthy of a Good Home



A night view of the Arnold establishment. Everyone looks. No dark corners. There are 15 candlepower for every square foot of floor space. The windows run clear down to the floor. This building was erected as the first step in becoming an automotive dealer. It cost $150,000. He says it's worth it to him



Beautiful oriental rugs are an important feature. They cost money, to be sure. But, starting from four employees and a garage 6 years and 8 months ago, Arnold now has 200 employees and has sold 9034 cars. His methods have brought business. This looks like a high-grade piano store, doesn't it? Well, that's the way Arnold believes cars must be sold

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Here Are 26 More

Good Car Sales Ideas

Seldom Raise the Hood

Our plan is to talk as little of the mechanical construction of the car and seldom raise the hood in making sales. We sell the service that the car will give, both in the excellence of its construction and the completeness of our service department.—H. J. Schwartz, president, Standard Motor Car Co., Hudson, Columbus.

Runs Service School

Several big firms in this city have large fleets of trucks. The drivers start out at 7 A. M. Once a month our shop foreman visits the garages of each of these firms, and delivers lectures and gives instruction to the drivers without charge. He invites questions. This is because drivers are frequently changed under present conditions, and green men are often put on. No charge is made for the service, which is in addition to the regular monthly inspection of trucks. The plan has brought in a fine lot of business.—W. M. Clement, W. M. Clement Motor Car Co., Scripps-Booth, Omaha.

Proof of the Pudding

If the prospect is hesitating between my car and that of another make, both of which please him, the other being slightly cheaper in price, I make a test case of it in point of service. We get into my car, drive several miles into the country, taking along catalogues of parts. We alight at a farm house. The prospect telephones my competitor's service department, gives the location and asks for such-and-such parts to be brought out at once. Then he telephones in the same way to my service department. The first one on the spot gets the sale. I have tried it fifty times, and won nearly every time.—George F. Reim, president, George F. Reim Co., Cadillac, Omaha.

Service Before the Sale

A prospect was considering my car and that of another dealer at the same time. He liked them both, and couldn't see much choice between them. But his time was valuable, and when he wanted to see a salesman or demonstrator, that man had to be on the job. We knew nothing of this fact until afterward, but discovered that a big factor in his choice was the assurance he had that when he called us up or came to our place of business there was a man on the job to give him undivided attention. —Lee Huff, Nebraska Buick Automobile Co., Omaha.

Beat the Traffic Problem

It's history now, but this firm was the first to utilize a train of circus cars to carry motor cars from the factory to the distribution point when other freight cars couldn't be had at any price. I found that a circus was wintering at a certain city, and its freight cars idle for a time. I leased the whole train at a day rate, subject to the call of the owners; paid mileage haul to the railroads, of course. But we got an average of 460 cars per month delivered while other distributers were stuck. It paid big.—Lee Huff, Nebraska Buick Co., Omaha.

Gets Every One

The girl out in front gets the license number and description of every car which stops within her range of vision. The name, business and other identification of every man who enters our salesrooms are obtained as fully as possible without giving offense. This is done at the earliest moment, whether a sale is attempted or not. With this information, our catalogues are sent out and followed up by personal calls on the part of salesmen. It pays bigger than one might think.—E. H. Scripps, Victor Motor Co., Omaha, Neb.

Stopped a Long-talker

We found that one of our salesmen didn't know when to stop talking. He operated on the plan that he had to say just so much about his car to sell it, and he said it to the bitter end. He lost more than one customer just that way. We showed him how to stop for breath, and how to watch his man for the proper moment in which to close the sale. He sold twice as many cars with less than one-fifth of the talk.—J. H. De Jong, Apperson Motor Co., Omaha.

Hammers on Reputation

A strong point to win confidence is impressing upon a prospect the responsibility our firm has to make good because it has been established in Denver 60 years, and is bound to make its motor car business live up to its saddlery business reputation.—John P. Heiser, H. H. Heiser Saddlery Co., Denver.

Smile! Smile! Smile!

The best method that I know of to get a man started to buy a car is to meet him with an expression of being the happiest man alive. Take any individual and when he goes out to invest $1,000 or more in a motor car he is doing a lot of thinking. And if he finds gloom all about the place and the salesman he is going to think that after all he may not be doing the best thing. He begins to doubt his own judgment. Make him feel that now he is going to join the progressive ranks, that this is a pretty old world and that it will seem a lot better from the seat of a motor car. There are different ways of doing this, depending upon the salesman, but that is my recipe. And it has been very successful.—Joseph S. Donovan, Studebaker, Boston.

Goes at 'Em Easy

When I talk to a man about a car I aim to get an idea what his needs are and then suggest that he go out and try different models, one after another, on different days, so that he knows I am not trying to get his money in a hurry. He feels satisfied then when he finally makes up his mind what he wants.—John H. MacAlenan, Stearns, Boston.

Fits Salesmen to the Car

I have found that the two requisites for success are to have a car that appeals to the buyer who can afford to pay a high price, comparatively, and to have a sales force that is high grade, giving the men the opportunity to use their own judgment.—John H. MacAlenan, Stearns, Boston.

Gives Own Service

We save money and make money by educating our customers to have all their work—except in emergency cases—done in our shop by our expert mechanics, in order to gain our free service of great value to them. This guards against bungling by imitation mechanics, and insures greater satisfaction in their cars. —J. P. Heiser, H. H. Heiser Co., Denver.

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Plan the Sales Talk

My plan is to sub-divide the features of our car, and then begin with the first series. Let the customer then ask some questions. Draw him out a bit. He will give you a lead. Then tell him additional features. Give him another lead and again you have a working basis. Of course much depends upon the buyer. I always advise a man to consult the women folks and bring them along, impressing it upon a man that we like to prove we can satisfy the entire family.—George Crettenden, Chandler, Boston.

Built Up His Dealers

We find that in order to make our business a success it is necessary to plan co-operation with our dealers. We place the cards on the table and tell them that no chain is stronger than its weaker link. On that basis we have built up an organization that has endured through dull periods. When necessary we arranged through our banking arrangements at Boston to aid them when they needed money and it was not possible to get it in the smaller towns. By working as a unit we have been successful. And in this way we have done a business that continues to grow, for we are all interested and exchange ideas to help each other.—C. P. Rockwell, Nash, Boston.

Saves Time

In the establishment of Alvan T. Fuller, Packard dealer in Boston, every department has a different colored tag; each tag provides for a series of remarks, and there is abolished forever the old idea of "Bill says do this," "Tom wants this done," "Jim suggests we do that," etc. There is no chance for controversy. The tag tells the story of what is to be done; when it is done; who did it. And they are filed in card systems where they can be reached in a minute. Time, the most precious thing imaginable, is never wasted. Selling and system go hand in hand.

Does Three Things

First—We start out with the idea that there is not a single good reason which can be advanced for prospective purchasers not buying our car.

Second—It is our plan to always say something different at each interview.

Third—Our motto is "Whatever can be conceived can be accomplished."—C. S. Henshaw, Dodge dealer, Boston.

Let Salesmen Specialize

Let each salesman specialize in the sale of but one car. Don't drop prospect either until he buys or dies.—Arthur Geesey, Anderson Motor Company, York, Pa.

Sell Advertised Goods

Always sell advertised goods. In order to establish a car in a new territory use the newspaper columns and tell all about the manufacturer of the car and as to how he has developed the manufacture of automobiles. Continue this until the reputation of the car has become well established.—J. W. Richley, J. W. Richley Auto Co., York, Pa.

Try One Idea a Day Each Week

Getting to a Hard One

One of the men was working on a lawyer for several weeks unable to get an interview because he was too busy. He told me his troubles. I directed him to write a letter saying he would call at 8.30 a. m. Saturday morning, which was not a court day. The salesman protested because he contended that was the time the lawyer opened his mail, but followed instructions. He was at the office ahead of time and when the lawyer came in the clerk told him our man was waiting. He was promptly invited in, given plenty of time to arrange a demonstration—and we sold a car.—R. Milton Norris, sales manager, Standard Motor Co., Cadillac distributer, Baltimore.

Got Wife's Help

A sale had been hanging fire and I got behind the salesman to find out the trouble. He said he couldn't close, but did not know what was wrong. The prospect had held his lips sealed as far as opposing our car was concerned. We knew the time the man left for his office. I sent the salesman to the house to see the wife. She very promptly told where the trouble lay and he arranged to come back at 5.30 and give another demonstration. It was the second trial and we closed the deal.—R. Milton Norris, sales manager, Standard Motor Co., Cadillac distributer, Baltimore.

Learn His Hobby

We have found that getting at a man's hobby when he wants a car often gets him interested in the car. These hobbies can always be learned of from acquaintances, and when a man gets off your line you can bring him back.—R. Milton Norris, sales manager, Standard Motor Co., Cadillac distributer, Baltimore.

Did the Unusual

I obtained the interest of a prospect, although I failed to sell him on that occasion by carrying a part of our car to his office. He was always too busy while seeing me to give his full attention. When I put down the transmission gear on his desk very carefully he was all eyes. I talked away from the subject until his curiosity finally caused him to ask what it was. Then I was able for the first time to get in my sales talk. He told me it was a great piece of work, but was interested thoroughly in another car. However, he helped to get me other prospects and sales resulted.—W. F. Kneip, president of the Franklin Motor Car Co., Baltimore, and president of the Baltimore Automobile Dealers' Association.

Gave Him a Shock

I sold a car to one of the hardest men I ever met because he would never listen to sales talks or talk automobiles, although it was known he was about to buy a car. One day I went to him after having made a number of unsuccessful efforts to get at him and said: "Somebody's being telling a lie about you."

"What's that?" he answered sharply, for the first time giving me full attention.

"They say you are going to buy a car."

He was completely disarmed, thought for a moment, and then said: "It's not exactly a lie. I'm thinking about it."

An hour later he signed a contract.—Charles T. Riley, salesman, United Auto Sales Co., Studebaker and Garford, Baltimore.

Keep Those You Lose

It pays to go back and see a prospect after he has bought a car of another maker. I found that out. I went back on one occasion, told the man we could still be good friends, and that when he found out he wanted another car or needed any assistance on the car he bought I would be glad to help him. Eight days later he came and bought my car because he was dissatisfied with the service of the car he purchased.—Charles T. Riley, salesman, United Auto Sales Co., Studebaker and Garford distributers, Baltimore.

Mechanics Can Help Sell

Good mechanics are valuable to a firm. This is proven often to us. A few days ago a woman brought her car here for service. Our service superintendent noted her interest in a new model she happened to look at. He notified the sales department. In 20 minutes the woman had bought a new car and, as she handed over a check for the full amount, remarked she never had an idea of buying a new car when she left home.—Arthur Stanley Zell, president of the Zell Motor Car Co., Baltimore, distributer of the Peerless and Chalmers.

Knockers Help the Knocked

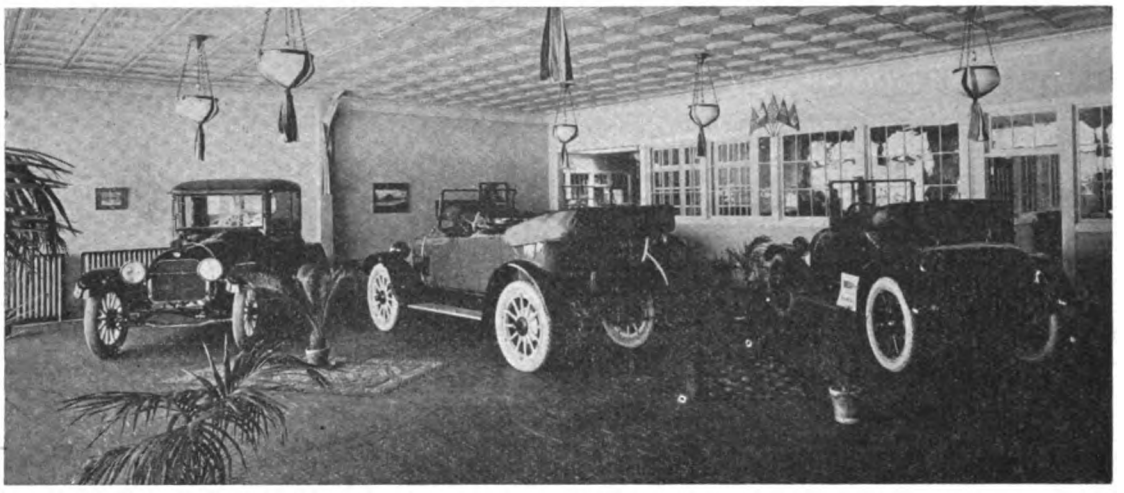
Knockers have sold a lot of cars for us. One customer came and bought a car after we had given up hope of selling him because two salesmen from other companies had handed out some strong wallops.—Arthur Stanley Zell, president of Zell Motor Car Co., Peerless and Chalmers distributers, Baltimore.

Now Look on Page 22

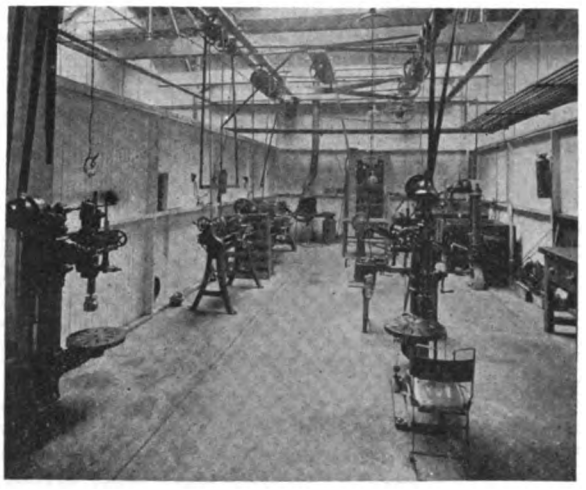
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Atmosphere of Merchandising

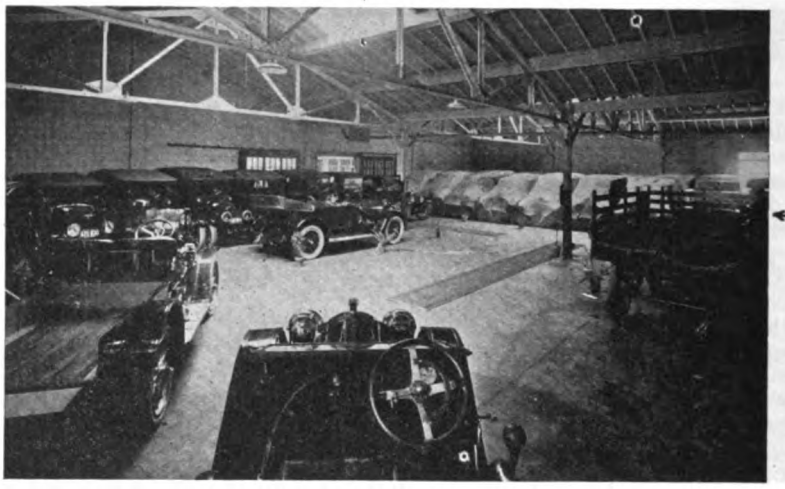
The Utica Motor Car Co., Utica, N. Y., Believes the Public Likes to Buy Its Cars in Surroundings That Are Attractive



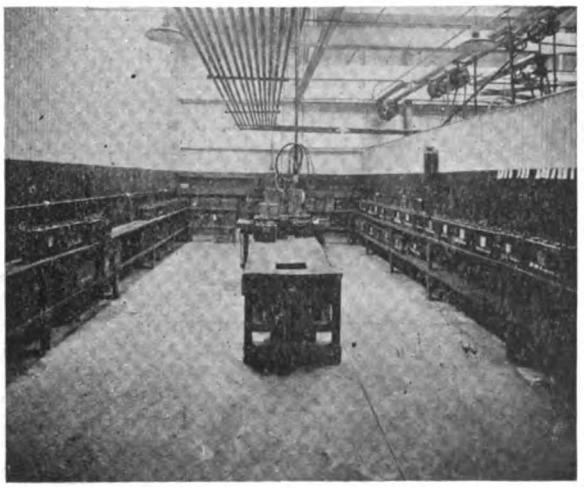
Selling the Reo and Cadillac, the company has separate salesrooms for each, but they are connected by doors leading into a third room. The Reo room, shown here, has rugs on the red tiled floor



This clean shop is shown to prospects



There are rugs even on the floor of the room where cars are stored



Did you ever see a cleaner battery room? Another sales argument

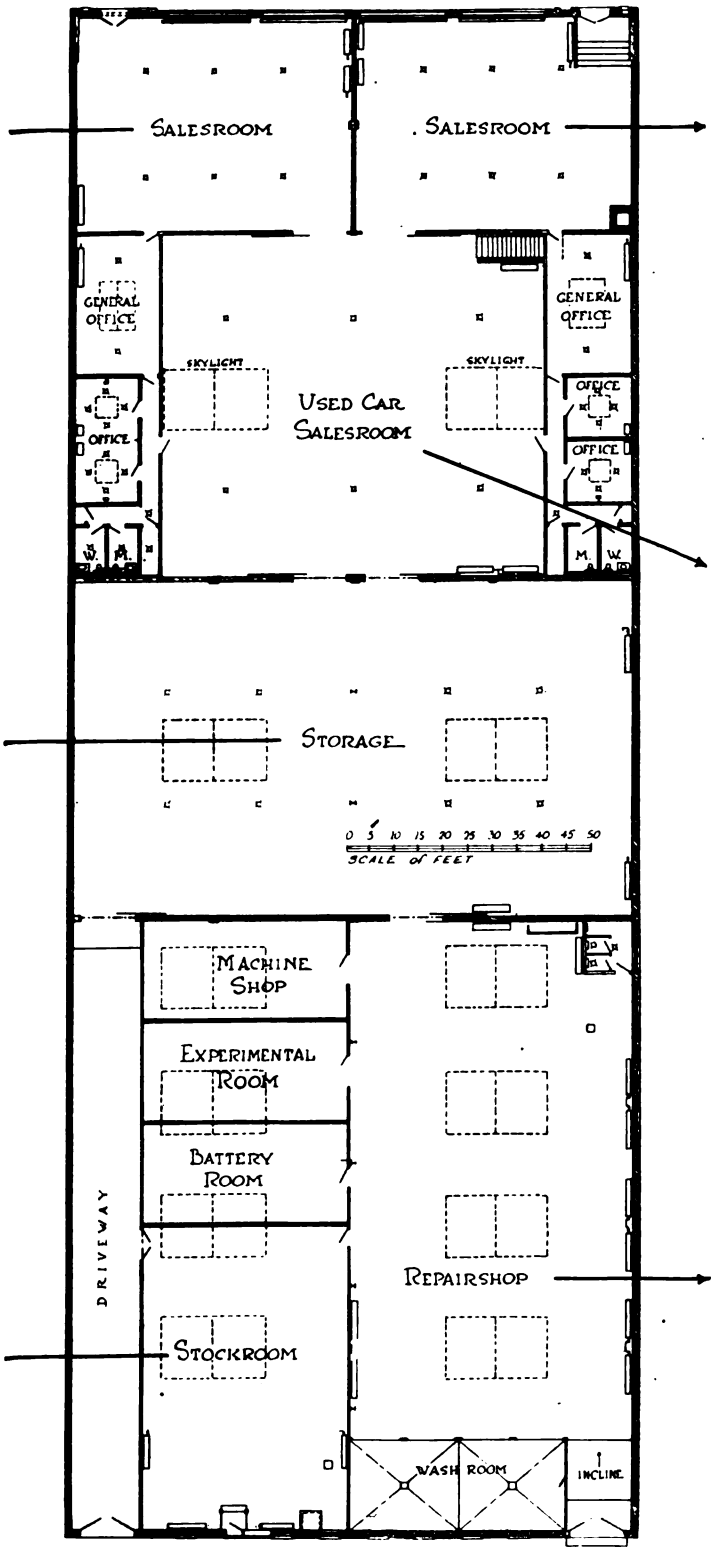


The stockroom looks the part and an ex-insurance man is the one who meets the public in the service station

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and a Clean Floor Sell Cars

Even the Storage Department Is Clean and Spotless and Is a Reflector of the Atmosphere in the Front Salesrooms



You can stand on the washrack and look clear through the building and out the front windows



Cadillacs, rugs, palms, red tiled floor. People buy



Broadway? No! The used car salesroom



Does it look like a repair shop? No! But it is. The salesmen show this room to wavering prospects and talk service

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27 More of Those Good Car Sales IDEAS

Get Them to the Salesroom

MANY a sale has been made on the floor by our salesman bringing the prospect to the showroom. One instance of a man being anxious for a car and not deciding on it was cleaned up promptly when he had him in the showroom and learned just wherein he was dissatisfied.—Arthur Stanley Zell, president Zell Motor Car Co., Peerless and Chalmers distributers, Baltimore.

Let Him Drive

When I cannot close, I know the prospect does not want my car. He is out to sell his old car to the highest bidder. The new car does not interest him so much as getting rid of his old one. The greatest puller is to put the man back of the wheel and let him drive. This will do more in a half hour than if you drove him all day.—A. C. Rose, Brown, Thomson & Co., Cadillac, Hartford, Conn.

Circularizing Pays

The best method of reaching prospects is by circularizing. It is absolutely prolific of good results. Our first campaign covered 800 names weekly. I signed each letter in ink. It had the personal touch and by some was not regarded as a circular at all. We reached people we could never go to because they were so far away. Circularizing is one of the best moves I ever made.—George D. Knox, Peerless, Hartford, Conn.

Analyze His Opposition

When I cannot close a man I analyze. This is the best thing to do if you get stuck. Analyze for a while and subconsciously you will find the weak points. Keep the man interested and you will get his business. Get him back of the wheel. Let him drive the car. This will close the sale. I can influence any prospect in five minutes in this manner. —George D. Knox, Peerless, Hartford, Conn.

Meet Him Half Way

The average automobile salesman has not been in business long enough to be as keen as the man he is trying to sell. The prospective buyer is on the defensive. You must break down his defenses. Meeting the customer half way draws business. At an expense of $12 I rearranged the seat cushions, the steering post and pedals for one customer. He has bought several cars because I met him half way. You must depart from stock material sometimes.—George D. Knox, Peerless, Hartford, Conn.

Get Another to Close

When I get to the point where I cannot close a man I turn him over to another salesman—who may be less experienced than myself yet possess some little tact that I lack which appeals to a certain customer. It is a matter of personality and applies to all sales.—James H. Whaley, Whaley Motor Co., Hartford, Conn.

The Type Determines

If the prospect is of the bulldog type I go after him easy. I never talk to a man longer than to interest him. I gain his confidence, then sell him. I go away back and give him the history of the automobile industry from the bicycle days on. I have the advantage in this knowledge in making comparisons. A thoroughly hard demonstration helps.—Harry Starkie, Chevrolet, Hartford, Conn.

Emergency Selling

Women are sales factors. The man may buy but the woman objects. A show prospect wanted my car. His wife did not like the cushions. I changed the angle of the cushion with a few catalogs. She bought the car. I am always studying human nature and you never can tell. I had a prospect, but thought he could not afford my car. I showed him all the points, had him sit in the car. He bought it. I have never gotten to the point where I could not close.—J. Cerdic Sleeth, Hartford Motor Car Co., Dodge, Hartford, Conn.

Switch and Lead Back

I simply keep after my prospects. I keep them interested until they change their minds. If I see they are slipping I just talk about other things and eventually get back to the main issue. Frequently if a prospect thinks you are disinterested it sharpens his own interest.—William M. Turnbull, Colonial Automobile Co., Studebaker, Hartford, Conn.

Each Case Different

No two men are alike. What to do when a prospect is hard to close depends on the man. You must give some men time; keep after them. If necessary call in help. Personality of the salesman and the prospect count—Ned C. Hopkins, Hartford Motor Car Co., Atterbury truck, Hartford, Conn.

Find the Real Reason

If the prospect is hard to pull across, first find the actual reason. That is what we always do. You haven't any chance of getting him unless you know the exact reason why he does not give you his order. What to do depends upon his reason. He may not have enough money, his wife or family may interfere with him. We always find out the exact reason.—W. H. Vinal, sales manager, Russell P. Taber, Inc., Reo, Republic and Duplex, Hartford, Conn.

Ask Him Why Not

If a man is hard to close, what I would do would depend on whether or not he is really interested in my car. I always make sure that he is interested first. If he is interested it is up to me. If he is not interested, I interest him. I create that essential desire for our car. I determine his reason for balking. I feel the fault is mine because we have the car; then I will say, if I cannot close him, "What is your objection to buying our car?" He will give his reason. I overcome that reason.—Lester Gage, A. C. Hine Co., Oakland, Hartford, Conn.

Parts Stock an Argument

The Sears Auto Co., Des Moines, has sold many a car in the parts stock room. When the salesman has gotten about as far as he can with the prospect, but is unable to close, he takes the prospect into the parts stockroom and gets him interested in the parts, gives him a handful of waste and starts handing him parts to look over. Sometimes the other fellow's parts are handy and comparisons are drawn. It has sold cars for the Sears people.

Cut Loose Once in a While

Sometimes old General Apathy takes complete command of a shop or salesroom. Nothing seems to move and all the salesmen are dead on their feet. Neither salesmen nor prospects are showing any interest. The Sears Auto Co., Des Moines, experienced such a period recently. Then Sales Manager Tom Harter took a Dodge touring car and set it on edge in the window, with the bottom side toward the window. It was labeled "A bug's eye view of a Dodge touring car."

Arrows pointed to the various features, which gave the public a striking view. Immediately great interest was shown by passersby. Passing cars stopped and looked it over. Many people went into the salesrooms to ask questions. As a result dozens of good prospects were secured and some actual sales can be directly traced to this novel advertising.

Play on His Hobby

Make a study of your prospect. Learn his hobbies and weaknesses. Then if you have him well lined up, but all of a sudden he seems to lose interest, forget the sale for that day. Talk to him about his golf, baseball, movies or horse racing, whichever happens to be his hobby.

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Then come back the next day and take a new start. The big thing is to have made such an acquaintance with the man as to know how to reach him.—Don Laster, Paterson Motor Co., Des Moines.

Talk Facts

The way to close motor car sales is to put the performance of your car into proven tables, so you can talk facts. Put the performance of your competitive car into tables of his own making, and talk facts. If you can't make a showing, get a car that can.—William A. King, Brandle Motors Co., St. Louis.

Combed the Byways

Go after the people others overlook.

Don't wait until the prospect comes in the door.

Ask your customers to give the names of friends who might buy.

Let your office boy or helper in the shop know that it is possible for him to sell a car to a relative or friend.

These are a few of the maxims that have made the Connell & McKone Company big distributers of Overlands in eastern Massachusetts. When W. J. Connell and J. L. McKone formed the company they started out to sell with an idea there were many overlooking the pleasures of motoring. Figuring up the cost they realized that there were a lot of people like school teachers, physicians, state and city employees, getting good salaries, who could afford cars. And they delved into salary lists here and there and found such people who had been overlooked, but who became motorists after being educated to the slight costs and big pleasures; particularly as many of the teachers usually saved up for foreign trips which cost more than a motor car. Of course they sold all classes, but they were not overlooking anyone.

Makes Them Think

We greet a man with the idea that he wants a car for combined necessity and enjoyment, and that first he is doing the right thing by his family when he buys a car, and next that by purchasing an economical machine that will give him adequate service he is doing his family an even greater service by not being extravagant. When a man begins to hesitate we talk along those lines, and it sets him thinking.—Charles E. Fay, Maxwell, Boston.

Make Prospect Sell Himself

One of the first things that we inquire from a prospective customer is whether or not he has any faith in the value of experience. Now every person has faith in that. Then we explain the history of the Reo briefly, and the years we have been handling it. Getting his name, we suggest that he consult Reo owners in his town. In other words we put the burden up to him to justify himself in buying our car. He feels that he has not made a mistake in looking us up then, and as he is in a receptive mood we are able to show him the features that have sold thousands of Reos. Many of our customers have sold the car to themselves.—J. M. Linscott, Reo, Boston.

Let's Give Them a Fair Chance, Boys

Study Sales Work

My salesmen are made to feel that they are doing a man a favor by selling him a car, and they are taught to talk that way. Whenever they seemed to be slipping I drift over and aid them, without seeming to be cutting in.

My men learn to make comparisons without knocking, for I go on the theory that cars that we might knock to-day we might be trying to sell to-morrow. They are taught to be enthusiastic, but within bounds. When a customer starts to argue we try to get him to admit there are some good points in our car. That gives openings to draw him out further. We study resourcefulness and it makes a wonderful difference. At conferences we freely discussed each other and our aims and purposes.—John H. Johnson, Buick-Boston Co., Boston.

Gets Under His Skin

About half my customers are not real sure that they need a car. I have a stock phrase that has served me so well that I cannot abandon it. I say, "We all ought to live as we go along—and the automobile is just as necessary to our modern civilized comfort as the telephone, electric light and bathroom." I believe that has sold more actually doubtful cases than any other phrase I have used.—D. L. Denise, Brisco dealer, Kansas City, Mo.

Tickle His Vanity

Man is vain and by pleasing his vanity many sales have been made by us. Often salesmen have not been able to come to the closing point or get the man to the salesroom. I then make the trip personally with the salesman and tell the prospect how we would like to be honored by listing him as one of our owners and what it means in the way of giving the car prestige. It has proven successful on many occasions.—W. E. Duck, manager of the Baltimore Winton Co.

Plays the Fox

Many appointments have been arranged by the use of the telephone and also audiences arranged. Sometimes we get at hard customers without telling them we are automobile salesmen.—Anonymous.

Takes Him Home at Night

Taking men to their homes after office hours by meeting them at the office door when they leave has been tried with success.—Anonymous.

The Best Is Cheapest

When the prospect is lined up but states that "your price is too high," bring out the time-honored argument that the best is the cheapest. It is as old as salesmanship, but it is as true as gold and in nine times out of ten when conditions are fair, if properly explained will make the sale.—D. S. Kruidenier, Kruidenier-Cadillac Co., Des Moines.

Use Two Salesmen

Sometimes if you can't sell the husband you can slip one over on him by selling his wife. The Sears Auto Co., Des Moines, had a salesman approach a Des Moines capitalist on a Mitchell sale. He was advised that Mr. Prospect wasn't even considering the Mitchell. The next day the sales manager had another salesman take a Mitchell to the residence and give a demonstration for the wife. He made three more trips and sold the car. If the first salesman had gone to the wife after being turned down by the husband he would have aroused trouble, but the "accidental" call by the second salesman put the sale across.

See What You Have

Sell the car you have in stock regardless of body types and other minor features. Don't let the prospect get away to some other dealer because you don't happen to have the particular style he wants in stock. Show him the car in stock is the car he wants. The touring car has been practically universal in Iowa up to the past year. Since restricted production has cut down the deliveries on this car many sales of sedans are being made to the Iowa farmers just because the salesman is persistent and can show to the wealthy farmer that the sedan is what he needs for comfort and service.—Dean Schooler, Ideal Auto Co., Oakland, Des Moines.

Make Him Look Foolish

When a prospect hands me this line: "Well, I'll think it over and let you know," I know if I can't close with him then I lose the sale. So I get him to tell me just why he is hesitating. Usually his reason or reasons for waiting appear foolish when he tells them, and after I have thoroughly convinced him "now is the time to buy" he buys.—(Refused to be quoted.)

Turn Now to Page 26

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Potatoes wont pay taxes. And you cannot clothe yourself with a dollar in polite society

¶ Merchandise is not money. Just bear this in mind when you talk with others about what we must do to win the war.

¶ You will notice most people talk about saving money as though money were food and clothes and munitions. And they talk about saving food when they don't mean saving at all. They mean using less. Let us think straight.

¶ As a matter of Government policy, it is vitally important to turn goods into money—to make and sell goods—as fast as possible. Goods (potatoes) remember, won't buy bonds and pay taxes; only money. If goods are to be sold, money must be spent. But some misguided people think they ought not to spend money for goods. What are the real facts?

¶ Food and clothes and other creature comforts are things which we produce by labor. Since we are shy on labor, it is obviously wise for all of us to consume less of the products of labor—to whatever extent the Government deems necessary.

¶ But, if we go beyond this, we are worse off. We unnecessarily restrict business, which reduces all our earnings, which in turn reduces our ability to finance the war. Business, we know, must be maintained. The question is, what business?

¶ This is being solved by Government control of manufacture and distribution of goods essential to us—control through means of embargoes. Labor is thus being transferred to the essential industries as needed. Scarce goods we are allowed little of.

¶ So get this point clear: what we are still permitted to buy is obviously produced without embarrassment to the Government's production program. And furthermore without embarrassment to the Government's financial program. Otherwise these things would not be available for our purchase.

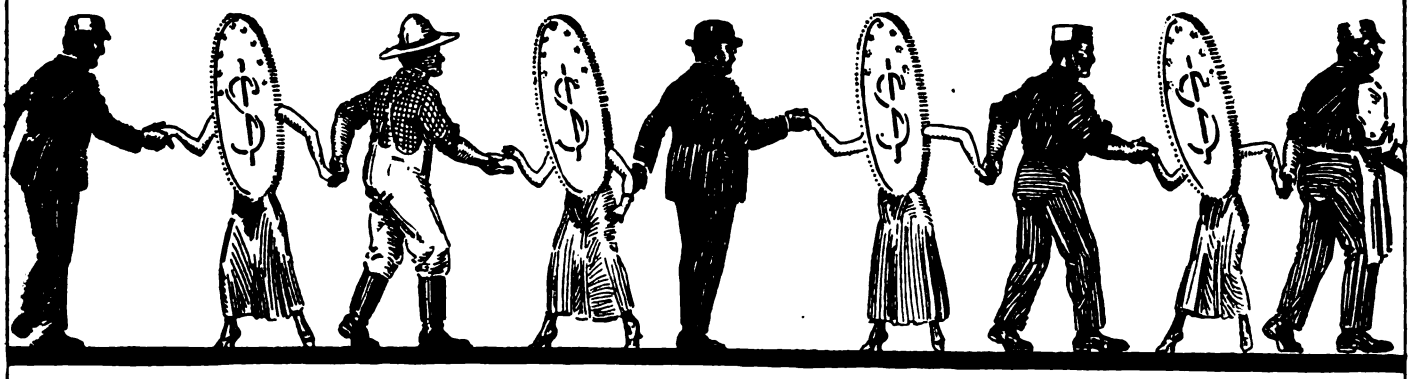
¶ Patriotic economy to-day is a matter of consuming less food, working more efficiently, earning more money, helping to turn goods into money by spending freely, and saving your excess earnings for Liberty Bonds.

C. H. Foster

President, Cadillac Automobile Company of Illinois

READ this page and you will have a good idea as to why business is necessary for the welfare of the country. C. H. Foster, who writes these, is one of the most successful of America's dealers—and he used to work on Chicago's row for 32 cents an hour.

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You remember the dancing school circle with its grand right and left. If anybody starts off wrong, or with the wrong hand, or drops out, confusion begins.

¶ The business of the world is a grand right and left. Dollars are the girls and workers are the men.

¶ If a man starts out wrong, or with his left hand, he causes so much confusion that we have laws to straighten him out. If a man tries to hang on to every dollar too long as it goes by, he slows up the circle and spoils others' chances and has to be corrected.

¶ If one man tries to pull his dollar out of the circle, no harm is done—except that the circle must be contracted. But the moment every man tries to seize his dollar, the circle is broken.

¶ That is a fairly good little picture that tells how we must keep dollars circulating. It shows how necessary the dollars are to the movement of the circle and how one or more men cannot be shut out of the circle without causing confusion.

¶ Each man must earn his dollar and then pass it along. As long as he does that, there are enough dollars to go around. That is what makes business.

¶ But the war question is "can we keep these dollars circulating and still buy enough Liberty Bonds?" Ask it the other way: "If we stop these dollars circulating, can we buy enough Liberty Bonds?"

¶ Immediately the answer is "no." We must buy our bonds with the dollars we make. And we make our dollars out of this perpetual grand right and left of money.

¶ Suppose people stopped buying your goods, could you buy bonds? No. Could you and your fellow workers buy others' goods? No. Then could the others buy bonds or goods? No. The circle is broken. Its members would soon be "broke."

¶ How to finance the war is no secret, if we make sure of financing and sustaining business. Then the grand right and left of money will pile up bank balances more than ample for Liberty Loans.

¶ So keeping up the grand right and left is your job and mine—spending freely—saving reasonably—to win the war.



President, Cadillac Automobile Company of Illinois

THE homely idea that is illustrated on this page is one more of a series of eight folders that Foster is distributing. Maybe he has a few left and perhaps he would let you reproduce them or use them as ads. Ask him. His address is 2301 *South Michigan Avenue, Chicago.*

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Still More!

Car Sales Ideas

(Look Also on These Pages 13-14-15-18-19-22-23-27-28)

Go Easy Once in a While

S. J. Penberthy, salesman for the Hudson-Jones Co., Des Moines, believes in having confidence in your customer. If he tells you he is too busy to talk take him at his word and don't try to rush him. Penberthy sold a $2,700 job last week by not bothering the prospect. Two weeks ago the prospect was interviewed, but told Penberthy he was too busy to consider the proposition. The salesman kept away for two weeks. Then he went back and got the check without even making a demonstration. In the meantime two other salesmen had rushed the prospect constantly. The man who was satisfied to bide his time got the business.

Beat His "Patriotism"

I've had a prospect, after he has actually been sold, decide not to take the car, saying he intended to buy Liberty bonds instead. Here is the way I resold him. "You should buy Liberty bonds. It is your patriotic duty. Still a man is entitled to some pleasure in life and here is the thing for you to do. Buy this car and pay the war tax. The war tax, payable to the Government, nearly equals the value of a small Liberty bond. By buying the car and paying the war tax you will have done your duty toward the Government and will have the car besides!" He bought.—D. H. Hotchkin, Summit Motor Car Co., Seattle.

Sell Him the War Tax

I like to have a sale hang on the question of who will pay the war tax. It gives me a chance to sell him patriotism as well as the car. Usually I can sell him war tax easier than I can the car, but after I convince him he should pay the tax, he buys the car.—D. H. Hotchkin, Summit Motor Car Co., Seattle.

The Price Question

When your prospect likes everything about the car except the price, by all means get his mind off the money. Tell him a funny story; talk anything but money. Money talk scares him. Bring out your best selling point—the one you are holding in reserve—and then tell him to "sign here!"—P. E. Sands, Frank Waterhouse & Co., Seattle.

Pull Off His Mask

Some men try to hide behind their wife's skirts when they want a car and still hate to take the leap. Ofttimes their wife is on the other end of the 'phone telling you to sell him. Don't let him get away with that stuff about, "Well, I'll talk it over with the wife, then let you know." Close with him.—(Refused to be quoted.)

Catch Him This Way

When a prospective purchaser tells me he is satisfied with our car and that he would buy if he could afford it, I show him, if he can afford any car, why he can't afford not to buy our machine. A few figures on cost of operation and maintenance usually turn the trick.—E. G. Hoffman, Pacific Sales Co., Inc., Seattle.

First Find Out

We don't figure every prospective automobile purchaser "our prospect." However, we give them the same courteous attention while we are tactfully finding out whether they can afford to buy our car. If we find, after the initial skirmish, that they are a prospect, we exert ourselves to sell them.—E. G. Hoffman, Pacific Sales Co., Inc., Seattle.

The "Third Degree"

When a prospect refuses to sign the dotted line after he has admitted the superiority of our car over other cars he has considered; when he acknowledges the car is exactly what he is looking for, I get him into my private office under some pretext—perhaps it is to show him a photograph—then I give him the "steam roller." When I finish I place my fountain pen in his hand and he invariably signs.

The "steam roller" or "third degree" process is something on this order: "You've bought this car yourself. We didn't sell it to you. You've looked at other cars, lots of them, and finally decided on our car. You are entirely satisfied. You've admitted that. I know what's the matter. You hate to let go of that much money. Isn't that the truth? Now here is what you'll do if you don't buy our car. You'll fool around and let some slicker salesman sell you something you don't want. You'll get beautifully stung."—P. E. Sands, Frank Waterhouse & Co., Seattle.

Appeal to Patriotism

We have found that appealing to a prospect's patriotism ofttimes closes a sale. When he balks on the cost we tell him it is our duty to keep the wheels of industry turning during the war and that we all should be willing to shoulder the additional costs incident to the war. Appealing to a man's patriotism will make sales.—E. G. Hoffman, Pacific Sales Co., Seattle.

Work the Real Ones

Cut down on your prospect lists; comb them down to a fine point. We would rather have a dozen *real* prospects than a file of *prospective* prospects. Concentrate on making a few sales. We would much rather see a salesman sitting down, figuring just how he was going to close a sale with a regular prospect, than have him burning expensive gas on the trail of fifty others who might some time buy. —O. W. Harris, Seattle Automobile Co., Seattle.

Meeting the Price Buyer

When a man hesitates, almost to the point of refusing, because our car is a few hundred dollars more than he intended to pay, I convince him he should pay the additional cost and *safeguard his investment.* I tell him he must figure the yearly cost of owning a car and to forget the initial cost.—O. W. Harris, Seattle Automobile Co., Seattle.

Cut Out the Hot Air

Our salesmen have instructions to cut out the camouflage and hot air. We tell them to stick to facts and to give arguments which can be picked up. A salesman has the reputation of being a hot air vendor, to begin with. It is up to him to "cross up" the prospect by sticking to real facts.—O. W. Harris, Seattle Automobile Co., Seattle.

Real Sales Work

A little business getter that I have worked out has made many sales for me and many friends for the line we are handling. Late Saturday evening, just before the public markets close, I drive in front of one of the stalls and select a likely-looking man and wife and shopping bag to ride out to their home with me. On the way out I show off my car, without letting them know I mean to. They can't help but notice how easy the car picks up, how we climb the hills and how smoothly the machine rides. I make friends for the car every time I do this and have made many sales. One sale will amply repay me for all the trips.—(Refused to be quoted.)

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Sell on Sentiment

I always get at the bottom of the objection to closing. Generally there is some one person in the family whose health is none too good. *I make it plain that our car is suited to that person.* If you work on their feelings long enough you will get them. I talk on the health proposition. One prospect I worked on five years. Told him to buy another car. He did. I have his respect. He will come back to me.—Fred L. Bragg, the Britton Co., Nash, Hartford, Conn.

Quit Him Cold

If they will not close I talk to them. You never get two people alike, anyway. Last night I had a prospect that would not close. I left him. I had aroused his interest. But he came back later and gave me his order. I made all details plain to him.—S. A. Foster, the Britton Co., Stearns-Knight, Hartford, Conn.

Sells Them Service

When all other things fail I try to sell them service. Impress on their minds that if I should die in the night the big Overland service organization will take care of them. When I get a man sold as far as I can and he still balks, a sensible presentation of the service proposition draws him over because the service is all we claim it—and then some. —W. G. Woodworth, Willys-Overland, Hartford, Conn.

Piles Up Small Admissions

When I cannot close I go right back to the beginning. I find some one point that will catch the prospect. I will get an admission on minor points and if I can get enough decisions on minor points I can sell him. A sufficient number of minor decisions outweigh the big argument.—Russell P. Taber, Reo, Hartford, Conn.

Keeps in Constant Touch

Constant attention to customers, looking after their interests, has assisted materially in the sale of Cadillacs. A. C. Rose, manager of Brown, Thomson & Co., Hartford, Conn., keeps in touch with all owners.

Prompt Attention Wins

Attention to customers when they enter the place is accorded by the Universal Auto Co., Franklin, Hupmobile, Diamond T and Bethlehem distributer, Hartford, Conn. Whoever comes through the door is taken care of promptly. He is not permitted to wander aimlessly about, possibly counting the seconds that it requires someone to see if he really wants something. If he wants service, the service department head is called in, if he wants tires the accessory manager takes care of him, or if he merely wants to browse around he is properly guided and shown the whole institution. Service is the keynote with the Universal Auto Co. It is regarded as one of the biggest assets in business.

THESE IDEAS Will Sell Cars

That Price Thing Again

When a prospect objects to the price of our cars, I point out the saving we offer in upkeep cost, first, through the quality of the car, and, second, through our free and practically unlimited service in expert inspection, testing and adjusting on cars bought from us.—John P. Heiser, general manager, H. H. Heiser Co., Denver, Velie.

An Attention Holder

If a prospect is not paying attention, I talk about something he is interested in and will talk freely about, to show him I believe in being a good mixer and am interested in other people's opinions or experiences.—John P. Heiser, H. H. Heiser Co., Denver.

His Name Helps

One idea worth real money is our coined name, "Heiservice," which gets people to investigate and gives us a chance to tell them what the name on the window means in way of service to Heiser customers.—John P. Heiser, H. H. Heiser Co., Denver.

That Price Objection

If a prospect objects to price I appeal first to his pride and then talk quality and economy of good investment.—L. E. Kelton, Denver, Haynes.

This Is Good

If a prospect seems to lose interest in my sales arguments I get him down under the car on a rug to look at some particular feature of mechanism. This usually stops his mind from wandering and gets him to ask questions. That's my chance.—W. F. Wilkerson, McCormick & Vertrees, Denver.

Dodges Price Query

I keep a prospect's mind away from price as long as possible by showing him what the car has and what it will do. If he asks the price so that I have to answer, I tell him quickly and then go right ahead with quality talk and demonstration. This postpones his chance to object about price.—W. F. Wilkerson, sales manager, McCormick & Vertrees, Denver, Interstate.

How to Gain Confidence

I gain a prospect's interest and confidence by emphasizing the conservative business men at the head of our factory. —W. F. Wilkerson, McCormick & Vertrees, Denver.

Never Says "Best"

I never say to a customer that our car is better than any other car he may mention. I simply show him everything our car has and leave comparisons to his own judgment.—W. F. Wilkerson, McCormick & Vertrees, Denver.

Let Prospect Demonstrate

My best approach to a prospect's check book is through interesting his wife or daughter in my car. The men pay the bills, but the women are usually the real buyers. If they have never driven a car I take them on streets not having enough traffic to make them nervous and teach them to drive. They see how easy it is to handle the car, and selling talk is not necessary. I never do demonstrating except to show special hill stunts, etc., when requested. Let the prospect demonstrate for himself or herself the ease and pleasure of driving.—W. E. Hardy, sales manager, Moore-Hardy Motor Co., Denver, Stephens.

Show First, Talk Later

I don't give prospects a chance to wander away from sales talk—I keep away from sales talk myself till the right time. I find out as quickly as possible whether a prospect is likely to consider a car in our price class, and then take him out and have him drive it himself. I get him to like the car first, and then sell him with as little talk as possible.—W. E. Hardy, Moore-Hardy Motor Co., Denver, Stephens.

Uses Mechanic-Salesman

Figures have shown me that there is no profit in outside work for our shop. We get the best mechanic we can and have him work exclusively for our car customers—with assistants if he needs them. When he is not needed in the shop he can explain mechanical features to prospects in the salesroom. They know that he knows. Service to car customers must come first, and we found that outside repair work led to frequent confusion in the salesroom and sometimes to interference with sales. This new shop system gives better impressions all around.—W. E. Hardy, Moore-Hardy Motor Co., Denver, Stephens.

To Bring Back the Wanderer

To bring a prospect back to the subject, I try to recall the point that first awakened special interest, and bring that up again.—H. R. Harrison, Harrison Motor Car Co., Denver.

Turn this Page, too

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Features Long Service

Right now our strongest line of appeal is the idea of a long-service car for economy and efficiency in industry—a big public need. Fitness for use in large business enterprises where dignity means strong influence, combined with low cost of upkeep, transfers a high-priced car from the luxury class to the Better Business class.—Bert Williams, vice-president, Mountain Motors Co., Denver, Packard.

Facts and Fitting

Talk doesn't sell our car. We don't have any spellbinding for a prospect to want to wander away from. We simply show what our car is and has and then have the prospect drive it himself to see how well it fits him.—Bert Williams, Mountain Motors Co., Denver.

Be a Man

I always approach people as a business man and not as a peddler. I try to hammer into my salesmen that selling a man a car is a business transaction of dignity and importance, that a prospect has no right to kill them for approaching him, and that failure to estimate their profession highly enough gives them a disadvantage from the start.—W. F. Doyle, sales manager for Geo. H. Estabrook, Denver.

Keep Close Tabs

Keeping careful tab of all that goes on in the business convinces me that about seven salesmen out of ten take spells of turning in fake prospect addresses—vacant houses, etc. If they confess that they lost their nerve and went joy-riding instead of calling on a prospect, I have a chance to teach them some needed points of salesmanship. Keeping tab this way cuts down lost time and expenses and also helps sales.—W. F. Doyle, sales manager for Geo. H. Estabrook, Denver.

When Interest Lags

If a prospect's interest lags I ask him some direct question, sometimes about his car experience and sometimes about his own line of business. He has to answer or be rude, and most people will answer. Then I make sure of his attention before I say any more about the car I want to sell him.—W. F. Doyle, sales manager for Geo. H. Estabrook, Denver.

Getting Out of a Corner

If cornered, I tell some favorable truth about a competing car. Showing that I'm not afraid of the truth has been worth several times $100 to me. A one-armed prospect once cornered me by asking if anything made my car better for him to handle than half a dozen others he had been looking at. I told him it was not better than all the others, and that I really believed a certain one would be easier for him than mine in respect to steering and handling the shift lever.

Have You Read All These IDEAS?

He bought my car because, he said, "You're the only automobile guy I've talked to that isn't selling a car made expressly for one-armed people." That sale led to three others within a week.—W. F. Doyle, sales manager for Geo. H. Estabrook, Denver.

Let Visitor Explain

When a man comes into the door, he gets a cheery "good-morning" or some other pleasant greeting, cordial in tone and genuinely so. Then I wait for him to talk, *and don't say anything myself until I have to.* I soon learn whether he is a private car owner, a dealer looking for territory, or a prospect looking for his first car, and about what price he considers. This plan paves the way in a smooth, agreeable manner, without any strain or embarrassment on either side.—W. F. Doyle, sales manager for George H. Estabrook, Denver, Briscoe and Hollier.

Overcoming Bad Looks

If a prospect complains because some vital part of the car doesn't look quite so artistic as he wants it to, I show him how he gets greater value in superior service. Good springs, for example, are not built primarily for looks. Cars, like people, can't be fairly judged by only outside appearances, I tell him. Then I talk comfort and practical enjoyment.—W. F. Doyle, sales manager for George H. Estabrook, Denver.

The Price Objector

When a prospect objects to price I tell him there is no argument about there being lots of good cars on the market, ask him how much money he expects to spend for a car and lead him into taking a view of what he will get for his money rather than how low a price he can find.—W. W. Beeson, National Motor Co., Denver.

Profits, Not Sales

We help educate our dealers to be high-class business men. I always pound into them the vital need of setting their aim upon profits they can make through wise management rather than on just the number of cars they can sell in a year.—W. W. Beeson, National Motor Co., Denver, National and Elgin.

Quick Change of Place

When a prospect pays poor attention to what I try to tell him about a car, I plan to show him what it will do without attempting further talk. My usual plan is to tell him I want to see somebody out in the country and suggest that he go along for a nice little ride. Then I take him over Lookout Mountain and make him want the car because it makes hard climbs and gives other practical service so easily.—A. T. Wilson, A. T. Wilson Auto Co., Denver, Standard and Premier.

Not Too Persistent

I've discovered that there are times when it is best to leave entirely alone the man who is to sign the check for the car. When the head of the family says he will sign the check when he gets ready and that he doesn't want anybody to bother him meanwhile, the chances are in favor of the check coming in if he is let alone; that is assuming, of course, that the situation with reference to the other members of the family is satisfactory.—L. C. Hinkle, Premier Motor Co., Kansas City.

He Meets Comparisons

I never make any comparison or disparagement except with reference to two other makes of cars. The only times I mention any other cars is when I say that we are in the class with Marmon and Cadillac and $1,300 cheaper. When the customer mentions any other car, I simply ring in the Marmon and Cadillac and stop there.—L. C. Hinkle, Premier Motor Co., Kansas City.

The Man Is Boss, But——

Nowadays both a man and his wife usually come in to look at a car. I almost always assume that the man is boss and will decide on the purchase; and I maintain this attitude throughout the negotiations. But I invariably find occasion to speak quietly with the wife and work just as hard to sell her on the features that would appeal to her. I don't believe it pays to pick out one member of the family and devote all selling attentions to that one.—L. C. Hinkle, Premier Motor Co., Kansas City.

Everyone's Friend

The boss says my salary rise from $150 to $300 a month in three years was because I can think of so many different ways to make visitors feel friendly to the establishment. It's fun to figure out for every man, woman and child who comes to our salesroom just how to get his business expedited most pleasantly. The other fellows get sore because so many customers ask for me—but I should worry! The boss is satisfied.—(He wouldn't sign his name.)

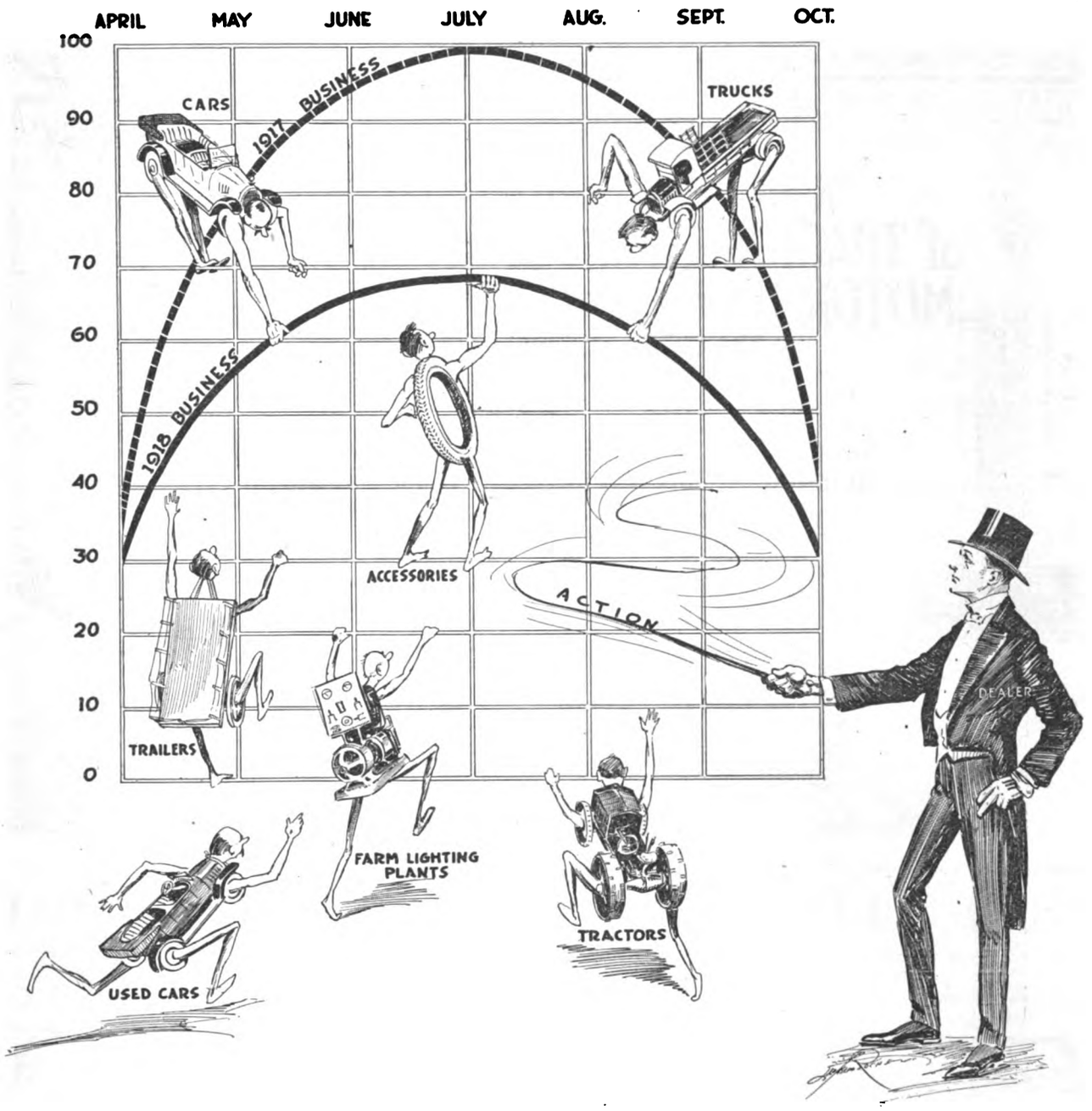
Admires His Own Car

One salesman has a habit of stopping a few seconds to admire the car that prospects are looking at before he starts to talk to them. Sometimes he makes a general comment on how fine this car is, sometimes he makes no comment—just "registers" admiration.—Anonymous.

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The Ringmaster

Up, Boys! Boost it up!

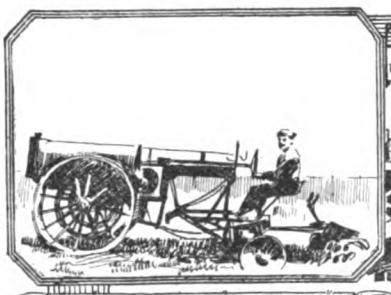


THE 1918 business curve may not be as high as the 1917 curve unless the dealer makes an effort to FORCE the total volume up. Cars and trucks can't be expected to do it all this year. The way to give a big, strong push is to call upon the other volume boosters —accessories, tractors, farm lighting plants, trailers and used cars sold at a profit. Plot a curve of your 1917 business and of your 1918 business as far as you have gone. See how they compare. Are you going to come through all right?

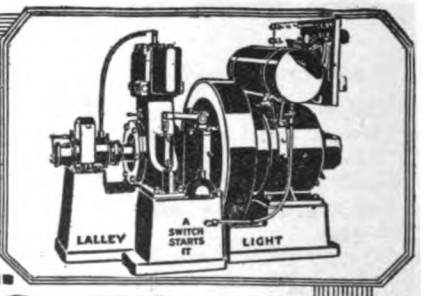
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Be Automotive—Here's the Way

TOLEDO DAILY BLADE Saturday, February 9, 1918







STAR TRACTORS $790 ∞

LALLEY FARM LIGHTING PLANTS $485 ∞

ROBERTS-TOLEDO "WIN THE WAR SHOW" of TRACTORS, FARM LIGHTING PLANTS, MOTOR TRUCKS, ACCESSORIES AND PASSENGER CARS

Will Be Held in Our Spacious Four Story Motor Building, Adams & Thirteenth Sts., Feb. 11 to 16

All together in a mighty win-the-war "push"—

A big year—for you and for the Country—

Do it? Of course you can—and you will—

Take your tip from the great American farmer—he's intensifying his crops—making two stalks grow where one was before—

And you can intensify your territory—

This isn't a "cheer-up" message, it's a "get busy" message.

You're going to sell many Automobiles, but there may be a shortage of cars.

That isn't going to handicap your business.

You're going to be prepared

You're going to do more than that—

You're going to sell other things which will make your total sales even greater—

FARM TRACTORS. FARM LIGHTING PLANTS and MOTOR TRUCKS—there's a big market for them.

That's why we want you to see this big win-the-war Show of ours—

Bring your "prospects," too—

If anything will demonstrate the possibilities of profits for you—this show will convince you—

Get on a win-the-war basis now—

Push yourself into the Big money class—

It's going to be a big year for the man big enough to make it big.

You are! You bet you are!

Come on in Show Week!

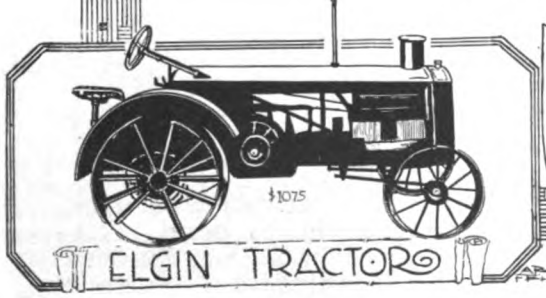
CHEVROLET

Mitchell

THE ROBERTS-TOLEDO AUTO CO.

ADAMS AT THIRTEENTH STREET

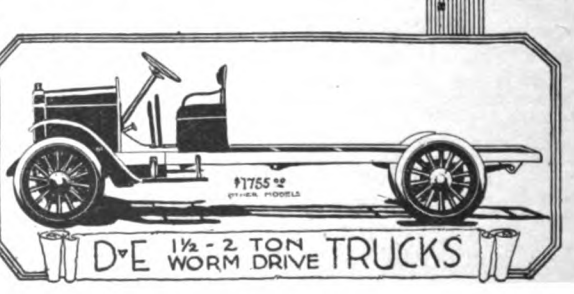
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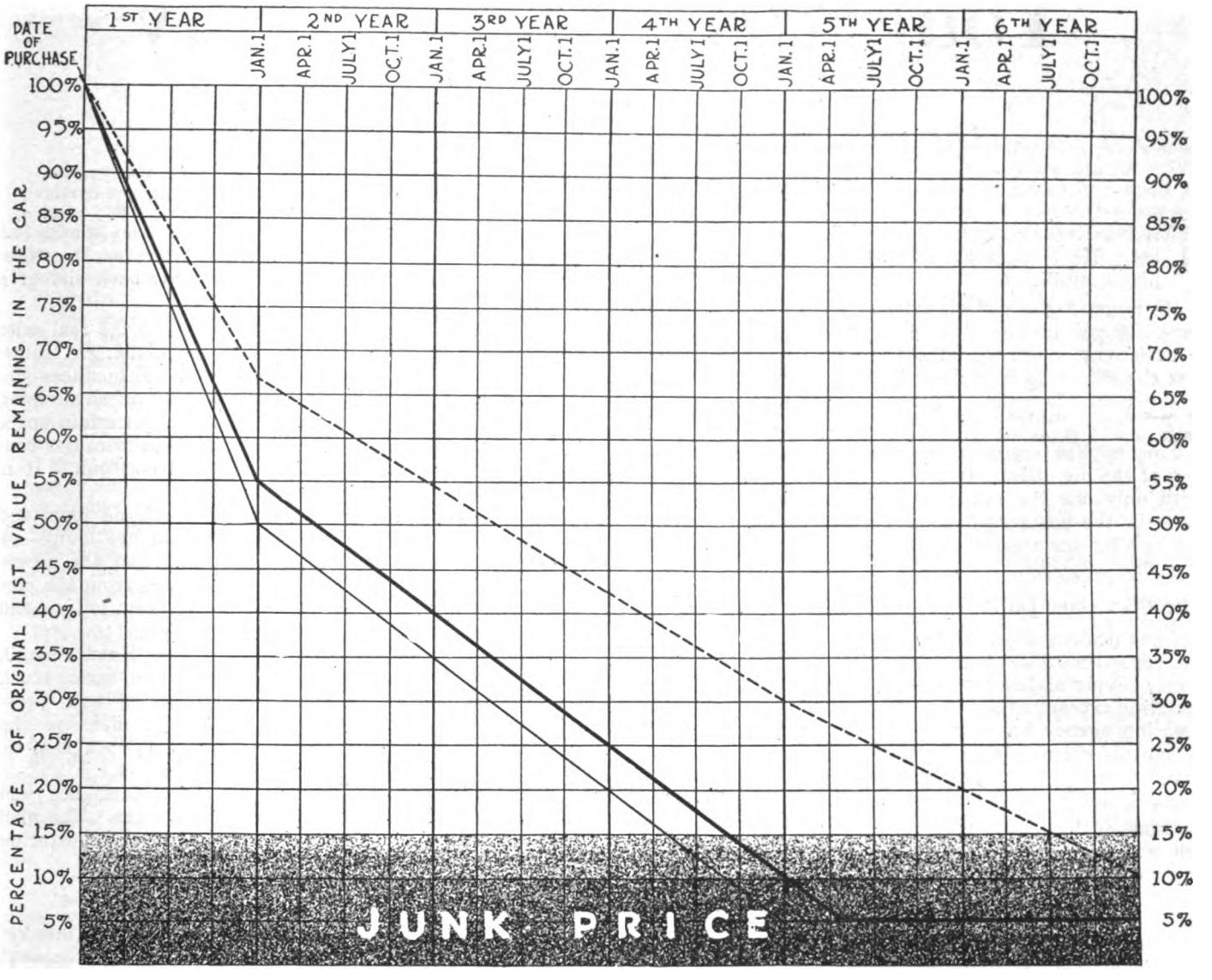
DIE 1½-2 TON WORM DRIVE TRUCKS

Here is the dealer advertisement of the future—large car, small car, truck, tractors, farm lighting system and accessories. This page ad was run by the Roberts-Toledo Auto Co. during the Toledo show

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Figure Your Used Car Values

On the Motor World Used Car Chart



1918	1917	1916	1915	1914	1913

How to Use the Chart—

1—Place your finger on the years at the bottom of the chart. As you touch "1918" say "one." Count to the right to the year the car is labeled. A 1916 model will therefore be "three." A 1918 model will be "one"—it was made last summer and is now considered by the buyer as one year old.

2—Let us illustrate with a 1916 Hudson. It is now, according to the chart method, three years old. Find where the BLACK LINE crosses the April 1 line in the Third Year. The percentage is about 35.

3—Multiply the present list price of the Hudson, $1950, by 35, and you get $682.50. Let's call it $685, for easy figuring. This is what the car should be worth to you "as is".

NOTE—Note that we have taken today's price instead of the 1916 price. This is because used cars compare with what the new car market is today and not what it was two years ago. In cases of models that have been little changed, as is the Super-Six or the Dodge, this method applies. In case a model has been greatly changed use the list price at the time of sale and add from 5 to 10 per cent, according to the standing of the car in your section. An important fact is that well-known cars of good value which were one year old last year are worth about the same price this year as last year, although they are now one year older.

4—To the $685 add 40, which gives $869. This is what the car will be worth when fixed up properly.

5—Check the car and find what it will cost to fix it up, display it and sell it. Let us say $110.

6—From the $869 subtract the $110, which gives $659. This is what you should allow.

7—Always scan the resale figure arrived at in paragraph 4, the $869. If your judgment tells you—but make it tell the truth—that the car will bring more or less, adjust the figure slightly before deducting the overhaul cost. Generally, however, the figure will hold good for well known cars of good value. In the case of discontinued models play pretty safe. They are risky.

Pads of forms for checking the condition of a car and finding what it will cost to do an overhaul can be bought from Motor World for 50 cents per pad of 100 sheets.

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THE TRUCK

Your 1918 Opportunity

Off with the Old Ways, On with the New

THE dealer who hasn't a truck agency is missing a bet. He is running at only a partial per cent of his possibilities.

He is getting a certain amount of business by selling cars. Maybe he has a complete line of cars. If so, he is cashing in more than the man who has only one car. But the man who is cashing in more than all the others is the man who sells a truck along with his passenger cars.

This applies especially to the dealer in all except a few of the big cities. In some of the large towns dealers with only one car get volume enough on that one car to make the business highly profitable, but as the cities get smaller the need becomes greater for a more extensive line of goods.

The Best Ones Do It

Some dealers advance objections to handling trucks at the same time that other dealers are making money on them. Some of the best-known dealers in big cities are handling trucks with profit. The soundness of this combination agency has been demonstrated thoroughly.

One objection is that the car and the truck can't be handled in combination. Perhaps they can't, but it is being done.

Many dealers state that passenger-car salesmen can't sell trucks and cars at the same time. The majority in favor of this idea indicates that it is right, but there are a few dealers whose salesmen sell both and do well at it. Others have tried the combination idea and quit it.

Truck selling requires only the same sound fundamentals that underly car selling. These are brainwork, initiative and action.

The first requisite is to be an agency. There are good trucks and poor trucks. The dealer should have little difficulty in making a selection. The mere fact that a truck is new or not widely known should not be taken as an indication that it is not a good truck. It may be brand new and the best in the world. But the dealer should investigate a little before taking the agency. They say: "Ask the man who owns one," so why should not the dealer "ask the man who sells them." Go to a truck dealer in several nearby towns and ask him how the truck lines up as an agency proposition. Get the facts before you start.

Having secured the agency, add standing to the truck by providing a decent place for its sale. This does not mean that it should be merchandised in a mahogany salesroom on the main street, although a main-street location is desirable. The truck salesroom should be clean and attractive, although somewhat plain in its furnishings. Some truck men say plain furnishings are best because many of the visitors are men who would feel abashed in mahogany surroundings. However, the salesroom should be a salesroom and not the back end of a garage.

After these steps have been taken comes the real sales work. Set aside a certain sum for advertising. Knowing your business, your resources and the business you may expect to do during the season, plan an advertising campaign for a definite period. Lay out a certain space for certain days and carry the campaign through consistently. Don't shoot it all in one ad and quit. It is waste money unless you keep it up.

Then compile a prospect list. Look around town and find three or four lines of business that are using—or could use—trucks of the size you sell. List the people in these trades. You can get their names from the city or telephone directory. Begin mailing them letters and literature at regular intervals.

Begin personal calls—and keep at them. Hard work, in making calls, is one of the greatest factors in car or truck selling. Study the best methods of talking with prospects. Go carefully over the truck-sales ideas on the pages that follow. Learn how successful truck men do their work. Imitation of them will help you.

Remember this: You are selling performance and transportation, not comfort and stream lines. The men who sell your trucks must be, in a way, transportation engineers.

Must Be Cost Men

They must be able to go into a man's business, interest him in what it is costing him to deliver or transport goods or materials, secure his assistance in getting these figures down on paper, and then figure out for him a comparison, showing how the truck will permit him to expand his business and save money.

One of the best plans advanced to date in truck selling is that the truck is not so much a "money saver" as it is a "business expander." The man who puts in motor-delivery can cover more territory at the same cost and can build up his business, and business expansion is one of our greatest needs to-day when national demands are heavier and the workers are fewer.

And some one man connected with your business should devote all or part of his time to the truck business. There should be a truck manager, even though he have other duties. Unless the business is fathered it will not become strong.

To-day dealers are feeling the change in conditions. Conditions will never be the same. Ten years from now dealers will be automotive, handling cars, trucks, tractors and other things. The man who gets a grip on things *NOW* will be miles ahead when the others start.

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HOW TO SELL TRUCKS

THERE are right and wrong ways to sell trucks. Those who have been at it for some time can give pointers to those who are new in the field. On these pages are the ideas of some of the smartest men in truck selling. They tell how they have succeeded. Incorporate these ideas in your business and go faster along the road to success in truck selling.

How to Sell Trucks

Everybody who has any hauling to do is to be considered a possible truck purchaser at this or some later time. The more hauling they do, the greater reason why they need trucks. Pick possible users who can afford to buy or those who have not the ready money, and convince them that the truck will increase their business.

The truck you sell is about seven-eighths of the battle, so in starting an agency the chief thing to consider is the truck itself. It is poor truck business to take trades that will strain you to carry them or make terms of such long duration that the vehicle can be seriously damaged while the buyer has but a comparatively small amount invested in it.

Missionary work must be done in truck selling. The public must be taught the need and the advantages to be derived from ownership. In large cities practically everyone has become convinced of truck utility. After the ability of the truck to stand up and deliver the goods has been proved, the next essential to success is looking after the customers in such a way that they regard you as a friend who has done them a favor. This will lead to repeat orders and that, after all, is the real thing, as practically every truck fleet in the country has been built up from a single sale.

The public markets are where many possible truck buyers may be found, the freight houses are another, and, of course, public utilities, manufacturers and supply houses have to have trucks. Very few truck prospects come into the place of business; you must go out and hunt them up.—J. E. Armstrong, Mack Truck Agency, Los Angeles.

In Touch with Things

Joseph V. Lawrence, vice-president of the Henry Paulman Co., Chicago, found that to sell Pierce-Arrow trucks he must be as well posted as the average business man. Therefore, he subscribed to a couple of current topics magazines and a couple of Wall Street newspapers and spends an hour every day reading, generally just before retiring, no matter what the hour may be.

Business in Business Hours

I have found the changing of sales systems a help in getting truck business. First, a man must get his name and the name of his truck before the public, and then he must create a connection between the dealer's name and the name of the commodity being sold.

Circular letters are good, but they must be short and to the point. The best way to sell a truck is to call on the business man at his place of business when he is busy. That is the only time he will talk business and unless a man will talk business you cannot sell a truck.

I never send a truck salesman to see a prospect on Saturday afternoons or on holidays. I instruct my salesman not to remain in the prospect's office on the first call for more than five minutes unless the prospect urges him to remain.

Tell the prospect that you don't want to bother him, hand him your literature on the truck to show a saving in figures, and walk out, telling him that you will call again for the literature. The chances are he will be ready to talk business when the salesman returns and he will experience no difficulty in gaining an audience with the prospect.—A. W. Buck, of the Brown-Rowan & Buck Co., Indianapolis.

Lists All Who Deliver

I make a list of every firm that delivers goods and go after them, prepared with figures to prove economy and efficiency. That is what the average business man wants. When I have him interested I suggest a demonstration. Haphazard statements will not go any more. What I say must be backed up by positive demonstration. Otherwise my time is wasted.—L. J. Malone, Bloomington, Ill.

Must Have the Goods

Truck prospects are usually well posted. They want the best at the lowest figure. If a dealer cannot back up his demonstration promises he is lost. Figures are interesting but the actual work of his truck must prove them true. A salesman must have confidence in his machine and be prepared for any question. Rash statements and exaggeration are quickly detected by the modern truck buyer.—C. U. Williams, Bloomington, Ill.

Keep Truck Cost Figures

Exact figures on cost of truck hauling are powerful both to win attention and to convince a prospect that he can afford a truck the same as other modern equipment in his business.—Cham Norton, Norton-Buick Auto Co., Denver.

Helps His Truck Dealers

"My plan to build up a truck business is to attend personally to getting the best class of dealers, and then helping them close difficult sales."—S. E. Norton, Norton-Buick Co., Denver, G. M. C.

Photos of Trucks at Work

Our truck salesmen win the interest of prospects most often by means of close-up photographs of trucks at work and by telegrams from satisfied owners.—Elmer A. Johnson, Miller-Ray Motor Co., Denver, Kissel.

Scans Car Owner List

The KisselKar Co., 178-180 Seventh Street, Milwaukee, dealer in Kissel trucks, has gained a large amount of business by continually going over its list of passenger car purchasers with a fine tooth comb to determine possible truck requirements.

Team Contracting Helps

M. D. Newald & Co., 201 Broadway, Milwaukee, dealer in Stewart trucks, and the Stoltz & Wright Co., 258 National Avenue, Milwaukee, dealer in the Kelly-Springfield, are two dealers who for many years have been large teaming contractors and still are engaged in this

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line. The information gained through this business has furnished practically as many truck customers as they have been able to conveniently handle with the number of vehicles allotted to them by their respective factories.

Truck "Sales Engineer"

When the J. H. Ryan Motor Truck Co., 495 Broadway, Milwaukee, dealer in the Diamond T truck, entered the local field, it started to sell trucks purely on performance—applying the "sales engineer" idea to the motor truck business. Sales engineers sell machine tools, cranes and other shop equipment purely on performance—the right machine in the right place for the right purpose, and capable of producing the right amount of results. In this manner the Diamond T truck has worked its way permanently into some of the highest class and most efficient institutions in Milwaukee. It costs sales that might be relatively easy to make, but the net result justifies the sacrifice.

Shows Comparative Figures

I sell trucks by a little common sense talk. I know all the fellows' business, put myself in the other fellow's place, know his costs, show them to him and compare the figures with motor transportation. We use a regular form for getting this information. Any sensible person is open to conviction. I show him the light.—Russell P. Taber, Reo, Republic and Duplex, Hartford, Conn.

System in Truck Service

When a car is inspected, the owner is promptly notified by the office in a written memorandum what work should be done at once, or if none is required. In case of firms with many cars, the request is made that these be sent one at a time for necessary service. When the car arrives, our office record simplifies locating work to be done. As a result, every Autocar truck in Omaha is giving from 12 to 16 hr. of service per day without interruption.—W. M. Clement, president, W. M. Clement Motor Car Co., Omaha, Neb.

Sell Right Size of Truck

Truck selling demands gaining the confidence of a prospective buyer, and then keeping his confidence. If a prospect imagines a one-ton truck will do two-ton work and hold up under it, I tell him frankly that it will not, show him why, tell him I would advise against buying a one-ton truck of my own line, and appeal to his best business judgment from the standpoint of investment. I made such a two-ton sale the other day by weighing an average load hauled in this man's business—after an over-enthusiastic competitor had urged a one-ton truck and merely guessed at the demands the business would make—and encouraged his prospect to guess also and take a chance.—John F. Mauro, sales manager, Swenson Auto Co., Denver, Republic.

Sell Only Where Needed

If a man wants a truck to haul lumber, we tell him we can't guarantee ours to satisfy him. If he wants one for mountain use on steep grades, we study the whole situation before considering a sale. If we see where a man can give his delivery system a re-routing and get along with the lightest of delivery trucks, we tell him so. When he actually needs a truck in our class, he is likely to remember our fairness to him.—H. R. Harrison, Harrison Motor Car Co., Denver.

Sometimes Go Slowly

As to approaching a prospect, I often study his needs and point out the general relation of trucks to his particular line of business for days or weeks before I mention the name of our truck.—H. R. Harrison, Harrison Motor Car Co., Denver.

Learn How Others Do It

Free Inspection Helps

Free truck inspection every two weeks in Denver, and according to specific agreement outside, is a business getter for our truck business. It helps to show how we give customers their deserved money's worth without discounts or trades.—H. R. Harrison, Harrison Motor Car Co., Denver.

Don't Mis-sell

The one safe way to develop a truck business that is a real business is to build for the future—even at the sacrifice of a sale now and then that might easily be made at a risk of reputation cost. I analyze a prospect's business thoroughly. If his drayage doesn't cost more than $150 a month, I tell him he can't make money by using a truck as large as a two-ton unit—and I don't sell him till he needs one that large.—H. R. Harrison, president Harrison Motor Car Co., Denver, Autocar.

Count the Cars

An enormous amount of possible business gets away from dealers and garagemen because they do not know that the business exists. A Firestone traveler recently tried to place a press at Salina, Kan. The garageman approached thought there were five or six trucks around Salina. A brief canvass disclosed the fact that there were sixty trucks in active service within fifty miles of the city.

Foreign Languages Help

Thos. P. Price, president of the Price-Sanmann Motor Co., Kansas City, has found the ability of J. F. Sanmann, a member of the firm, and Harry Lohr, salesman, to speak other languages immensely helpful in selling Wright truck attachments to truck gardeners near Kansas City.

Hired the Factory Man

My success dates from the day the factory man who sold me the contract accepted his present job with me.—Anonymous.

Play Squarely

We do not give one cent discount, and we never promise any. We never misrepresent a single item, and we live up to all promises. Results, more than 50 per cent of our truck orders thus far are repeat orders.—H. R. Harrison, Harrison Motor Car Co., Denver.

Good Partner Helps

Many automobile dealers have found that sales fall into their lap when they stock trucks. One Kansas dealer had sold a few trucks but he didn't get into big business till he took a partner who had some money and who had banking experience. His partner was willing to work in the office getting out parts and the dealer was able to spend all his time on sales efforts, feeling sure that the books would be kept.

Watch Daily Events

One truck dealer who watched local events—a strike—learned that a paving contractor using teams was likely to be embarrassed in securing teamsters, and was about to begin work on a large contract. The truck dealer showed the contractor that two trucks could do the work of eight or ten teams and relieve the possible embarrassment. The contractor bought two trucks at

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once; before he had finished the contract, he had bought five more.

Seasons for Prospects

J. O. Warner, Indiana truck representative at Kansas City, urges his dealers to make up and keep fresh the lists of prospects by businesses with dates on which they should be solicited. There are seasons when each business is a particularly good prospect; and if the list is frequently reviewed, the dealer, if he is wide-awake, can better keep track of the application of new conditions through the necessities of these businesses with reference to motor trucks. The truck dealer who has such a list would be reminded that while coal dealers ordinarily would be good prospects in late summer, this year they are excellent prospects during April.

Call at the Right Time

Some dealers find it pays in time and effort saved to make a still hunt through various lines of business for the dates on which sales effort should be made so that their attacks may be made close to the time when purchases are likely to be in the minds of the prospects. The useless trips that otherwise they would make on these prospects could be devoted to men who are in immediate need of trucks.

Coal Day for the Coal Men

J. O. Warner, district manager for Indiana trucks in Kansas City, frequently when cooperating with local dealers, devotes special days to special industries. One day they will go after coal men; the next day wholesale grocers; the next day transfer men; and so on. Specializing thus, they have their information on the particular business right at hand, and develop impetus in making the sales talks, objections and responses being fresh in mind.

Hits 'Em Anywhere

When Will Makinney, Pittsburg, Kan., sees a man with a team, either in the city or on his visits to rural districts, and other communities, he goes after him to sell a truck. Makinney sold $189,000 worth of Indiana trucks in 1917, all direct personal sales by himself.

Made Hard Demonstration

The Omaha Sandow Co. learned that the Bell Telephone Co., erecting a new building, was having difficulty finding a transfer man to move some 18-ton steel girders. The truck company offered to move the girders; it did so and found the advertising through the stunt made a considerable number of good sales easy.

Bought Out the Prospect

The Omaha Sandow Co., Omaha, Neb., trying to sell trucks to a transfer company that was not doing extra well with teams, finally had to take 51 per cent of the stock of the transfer company for four trucks. The truck distributer had studied the local opportunities for transfer work, and knew the trucks would make money. They did. Within three months, the original stockholders of the transfer company bought the trucks at retail prices and gave the manager of the Sandow Co. $10,000 to relinquish his 51 per cent of the stock.

Real Constructive Idea

A. L. Coyle, Coffeyville, Kan., approaches team owners, not with the statement that trucks will displace teams, but that trucks will develop new business and new opportunities. The Hastings Transfer Co., at Coffeyville, Kan., was using six teams; the manager knew he needed the teams for his kind of work. Coyle sold the transfer company a 2-ton Sandow March 1; the truck did not displace any of the teams; but the Hastings Transfer Co. bought another 2-ton Sandow and a 1½-ton within three weeks, to take care of the new business developed.

Read These Ideas of Successful Truck Salesmen

Coyle, in the little town of Coffeyville, bought twenty-four trucks during March, including the three for the Hastings Transfer Co.

List the Big Fellows

Excellent lists of prospects are obtained by taking a list of large merchants and manufacturers of a town and making investigation as to their traffic needs.—Milton Koenig, Weber Automobile and Implement Co., St. Louis.

Go After Truck Gardeners

All truck gardeners who send product to market early are prospects for light trucks.—Milton Koenig, Weber Automobile and Implement Co., St. Louis.

Plays "Mine Host"

I suppose I am a bit different from a lot of other dealers in that I like to make a customer feel he is doing business with the head of the house. So I have my office located where my visitor may walk right in. And when a man comes in he is sure to get a cheery greeting from me, or a friendly nod even if a salesman meets him. He is at home at once. Salesmen are instructed to refer customers to me if they are in doubt. Then we start figuring out together like a happy family the needs of a buyer, and from the beginning he is made to feel that unless we can improve his service he will not be encouraged to buy anything. Having won his confidence we never abuse it, for we want customers who will come year after year, not the temporary ones, as our business is built to endure.—John H. Judd, Smith and Gramm-Bernstein, Boston.

Sells Transportation Insurance

When we find buyers of trucks are hesitating about a purchase we explain to them that, in addition to other things, we are selling them TRANSPORTATION INSURANCE. That has clinched a number of sales. And we use it in our advertising.

It works out this way. If a man considers a truck and he is brought to the point of nearly buying we ask him if he knows what transportation insurance is. He does not at first. So we say: Suppose you are told that there is a load of material for your mill or business at New York, Fall River, Providence or some other point miles away, but it cannot be delivered to you.

You own a big truck that is doing its daily hauling in and about Boston delivering your product. Your plant is threatened with a shut-down for lack of materials. All you do is order your truck to go get the things you need to keep the business going. It insures you against interruption in business. Or if you have a contract to deliver a line of goods somewhere and the railroad will not accept them your truck will do it, and you keep on good terms with the buyer. It insures your business. I am surprised that many have not advertised this nationally.—J. W. Maguire, Pierce-Arrow, Boston.

Go to Farmers' Institutes

I visit farmers' institutes in the spring and summer and begin a campaign for truck sales among the farmers. This is an easy method to reach the farmer.—A. H. Geesey, Anderson Motor Co., York, Pa.

Get Into Right Trades

Make a study of the trades that have adopted the motor truck for quick and economical transportation.

(*Continued on page* 53)

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24 Ways to Save

A DOLLAR of gross profit may not be profit if expenses eat it up. A dollar saved by efficient management is one dollar added to the profits. On these pages are the "cost and accounting, ideas of many men. They tell leaks they have found and how they have plugged them. Even though you have good bookkeeping in your office your back door may be ajar. Read these ideas and see how many of them remind you of dollar-saving opportunities in your own business.

Lost Minutes at Lunch

The manager of a large accessory supply house in Los Angeles discovered that the time allowed employees for their lunch hour tended to disorganization. Whenever the employee was away from his station, a fellow worker had to do the work of two, and unfamiliarity with stock and details sometimes occasioned loss of trade and always inconvenience. He had to carry one more employee than really was necessary in order to keep a full working force busy at all times. He put into effect the plan of closing the store at 12 o'clock and locking it. All employees took one hour for lunch and the store reopened and continued with a full force at 1 o'clock. He says he has lost practically no trade by this plan and it has saved money by better efficiency.

What the Clock Told

Figures have shown me that a time clock pays for itself in rightly distributing shop costs—Thomas C. Walker, Walker-Plath Motor Co., Denver, Moon.

Time Clock Saved Money

We lost money frequently in the shop until we put in a time clock to record every single job of work.—John Graham, Colorado Motor Co., Denver.

Bins for Parts

An item worth several hundred dollars to the business in time saved, better knowledge of parts needed, etc., is a neat and convenient arrangement of about 1200 bins for parts. Each bin has one tagged part with stock number, model number, etc.—Colorado-Nash Motor Sales Co., Denver.

Returns Parts Promptly

Figures have shown me the importance of keeping a close record of all defective parts and sending them back to the factory without delay. This saves money mainly for our customers, but it pays for itself over and over again in increased satisfaction—A. M. Platt, Platt-Fawcett Motor Co., Denver.

Have the Bills Ready

Until we are able to get on a cash basis (which will be soon), we find that it saves time, trouble and money to have all repair bills ready when car is called for.—A. M. Platt, Platt-Fawcett Motor Co., Denver.

Finding Lost Gasoline

Our gasoline account kept showing on the wrong side of the ledger until we found that gasoline was not being charged to cars by the service department. That experience has increased our vigilance to make absolutely sure about every item of expense.—A. Tom Botterill, accountant, Denver.

Cut Out Cut Prices

The best thing we ever did for our business was to do two years ago the very thing the Government is now requesting retail dry goods, clothing, shoe and women's wear merchants to put into effect—to cut out all special discounts and establish a one-price-to-all system. We admit that we were giving special discounts to certain retail customers pretty freely at that time. These were to friends who grew up with our business. We took the bull by the horns and in sending out our statements on the first of the month, made a rubber-stamp notation that special prices were at an end and thereafter the list price must govern. All but a few of those affected were such true friends of the house that they complimented us on the move and brought in more than enough new patrons to offset the small loss, not counting the addition to our income from getting the legitimate full list price.—Auto Supply Co., Milwaukee.

Hired a Leak-Hunter

When we closed up our books for the year and noted a net loss of more than $2,000 in the operation of our stockrooms, we got to thinking pretty hard. There were so many leaks that it resembled a sieve. To make a long story short, we placed a competent man in charge, put him on his honor to issue nothing without a requisition from the office, made him responsible for his key, and kept but one other key—and that where only the manager could find it. Thereafter every customer paid for what he got in the way of parts, accessories, supplies, etc. Our profit the first year was enough to cover the previous year's loss and to pay the stockroom keeper's annual salary. The stockroom ceased to be a charitable and benevolent institution.—Mitchell Automobile Co., 528-532 Broadway, Milwaukee.

Learned the Truth

"What have figures told us?" First of all, they have told us the truth. They have also told us of the earnings of each department, the losses and gains and the condition of our business at all times. Figures have told us, too, that we have been successful in our business.

We use the Motor World System of Accounting and it has done more toward keeping us in immediate touch with our business than anything else. If the Motor World System is used and the work kept up, any man can tell the condition of his business any hour of the day, any day in the week.

"Figures won't lie," but in our business the Motor World System of Accounting makes them tell the truth more plainly and concisely than any system we have previously used.—Carter Automobile Co., by R. S. Carter, Galveston, Tex.

He Quit Selling

The best business move I ever made was getting out of the car selling business for myself and selling for the other fellow. With insufficient capital it is difficult to meet the incidentals that are always coming up in car selling. Starting without a substantial reserve spells disaster. The garage and repair business can be made to pay. My repairshop is now on a paying basis. We get off a balance every three months. Just about an even split. Sometimes we are in the hole. A weekly balance enables us to catch all the loose ends.—James H. Whaley, Whaley Motor Co., Hartford, Conn.

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Watch Small Items

Cost analysis showed several departments were costing too much. Overhead was too heavy. Salesmen cost $1,000 more last year than their commissions, because of gasoline, oil and tire expense. Now we check up everything. All ends must be watched closely.—M. J. Bliss, Heublein Garage Co., Hartford, Conn.

Watch Your Purchases

Figures have shown me that it pays to keep a careful, itemized check of everything bought, whether it is later sold or used in the business. This is especially true of oils and greases, which must be charged up in every case, even if used in demonstrator or used car.—L. E. Kelton, Denver.

Profit on Used Cars

One idea I believe will be worth several hundred dollars to me is *demanding a profit on used cars.* It costs something to sell a used car, the same as a new one. So why sell at a practical loss and depend entirely on new car sales for profits? It is surely legitimate to make profits both ways, for a trade-in allowance is practically buying the old car.—L. E. Kelton, Denver.

Avoids Long Demonstrations

Figures have shown me that long demonstration trips average a heavy waste of money and time. If a prospect asks for some long trip into the mountains, I satisfy him first on hill tests and other demonstrations nearby, and then put the proposition squarely up to him whether he will buy if car suits him on the long trip. If he is dissatisfied about the performance of the car or about the price, I figure the time and expense of a half-day long trip can be better invested in working other prospects. The long trip is all right in extraordinary cases where that remains the sole test of a sale.—L. E. Kelton, L. E. Kelton Motor Co., Denver.

Cut Demonstrating Cost

Figures have shown us how to stop a lot of demonstration waste. Besides saving much useless demonstration expense, we now charge demonstration gasoline carefully to every car itself. This saves about 18 per cent in selling cost over the old plan, and also makes our salesmen more careful and businesslike.—R. H. Vertrees, McCormick & Vertrees, Denver.

Watch Your Measures

Our accounting system is aided by careful inspecting and testing. Grease guns often give wrong measure. If overmeasure, we are losing money. If under, we risk making a customer dissatisfied through possible injury to his truck. We have discovered both these and other kinds of leaks in our shop through more rigid inspection.—H. R. Harrison, Harrison Motor Car Co., Denver.

Prices All Jobs

A competitor showed me what bookkeeping meant to a business. My shop was unprofitable and I did not know why until the competitor showed me how he priced his jobs by actual cost of material and time, plus profit. I am adopting his system.—A Ford dealer in St. Louis.

Developed Resourceful Men

I believe that I was one of the first men in Boston to systematize my business. Away back in the old days I saw that there was bound to be a waning of the sales made on froth from the wine bottle, and I began to study to anticipate it. So my clerical force was enlarged and I made inquiries from business friends about various plans.

In this way I picked out the best of a number and put them into operation. My idea was to make the business self-sustaining so that my being absent for a few days on factory trips made no difference. In other words our force was not run on the principle "Wait for the Boss to decide," "Let's telephone to J. L. at his home, or the club." The force learned initiative and they marketed our product so that we could afford to own one of the biggest establishments on one of the leading streets long before many others. I was stepping out a little ahead of the rank and file, but never getting out of step.—John L. Snow, Peerless, Boston.

Saved on Demonstrators

The manager of one of the most successful agencies in Boston became interested in the expenses of his business about a year ago, and very quietly he began to check up on the use of his cars for demonstrations, etc., without letting the fact become generally known. He began to keep tabs on mileage by getting around early, or staying late, and reading the speedometers unobserved. And the mileage did not tally with some of the statements of the men. Then he installed a new system.

Now when a demonstration is booked a check is kept on everything. First, there must be the reason for taking out the car. Next, the gasoline is verified; then, the speedometer. No driver can get gas or oil without an O. K., and he must turn in a statement about the trip, mileage, gasoline used, etc., and they are checked up. It has put an end to promiscuous use of cars, and as no car is ever allowed out on a Sunday without its being for business purposes all excursion parties have been eliminated. And he has saved thousands of dollars by applying business methods. But some of the salesmen are inclined to regard the boss as stingy.

Hired an Auditor

More than a year ago I became interested in the series of stories in Motor World on business methods. At that time I had been running my business on a fairly accurate basis. But some of the stories gave me an idea, and that was that it paid to do things right.

So I advertised for a man who had executive ability, and was also an auditor. To him I turned over the details of the business. *It was a marvel the way he did things.*

Every morning I had a detailed statement telling just where the business stood in dollars and cents, not alone in Boston, but at our branches. That man earned a year's salary in a few months, for he not only systematized the business, but he also helped build it up by letters, etc., leaving me and the salesmen free to market the cars. And we were oversold.

It pays to get a good man; it pays even more to have details taken off your shoulders, for detail work kills more business men annually than ill health, though they do not know it. It will keep you out in the open; out of a sanitarium; out of the premature grave; out of the bankruptcy court.—A. H. Sowers, Jackson car, Fulton truck, and Amesbury Unit, Boston.

Figures told us that old cars and price concessions have put many dealers on the shoals of bankruptcy. We figured that it cost money to sell used cars. Consequently we accept them from purchasers of new cars only on the following basis:

First—We do not, and never have taken, cars in trade. A nominal charge is made if a customer places a used car in our place and if it is removed by him before being sold by us and the new car delivered.

Second—A charge is made to cover the cost of advertising, selling, storage and demonstration after we have disposed of it.

Third—We retain 20 per cent of the sale price of the used car if the order for a new car is not consummated for any reason within six months from date of sale.

Figures prove that the service department should be on a cash basis. It has been that way always.

Every department must pay for itself and monthly statements must show this.—C. S. Henshaw, Dodge dealer, Boston.

Mail Bills Promptly

We have found that the loose leaf book-keeping system, which permits us to make up our bills at the close of each working day and mail them out promptly, has brought us good returns and also brought in more money from both our

(*Continued on page* 53)

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The Tractor

An Extra Source of 1918 Profits

Why is the motor car dealer the best tractor dealer?
What are the things you should watch out for in selling tractors?
What size of tractor should you sell for certain sized farms?
What are the things that will help you make tractor sales?
Read These Stories on the Tractor Situation

WHETHER he be in the East, West, North or South the dealer should investigate the tractor business. It is an opportunity that looms to some as yet but faintly, but which has already been grasped by others, as is borne out by the illustrations on these two pages.

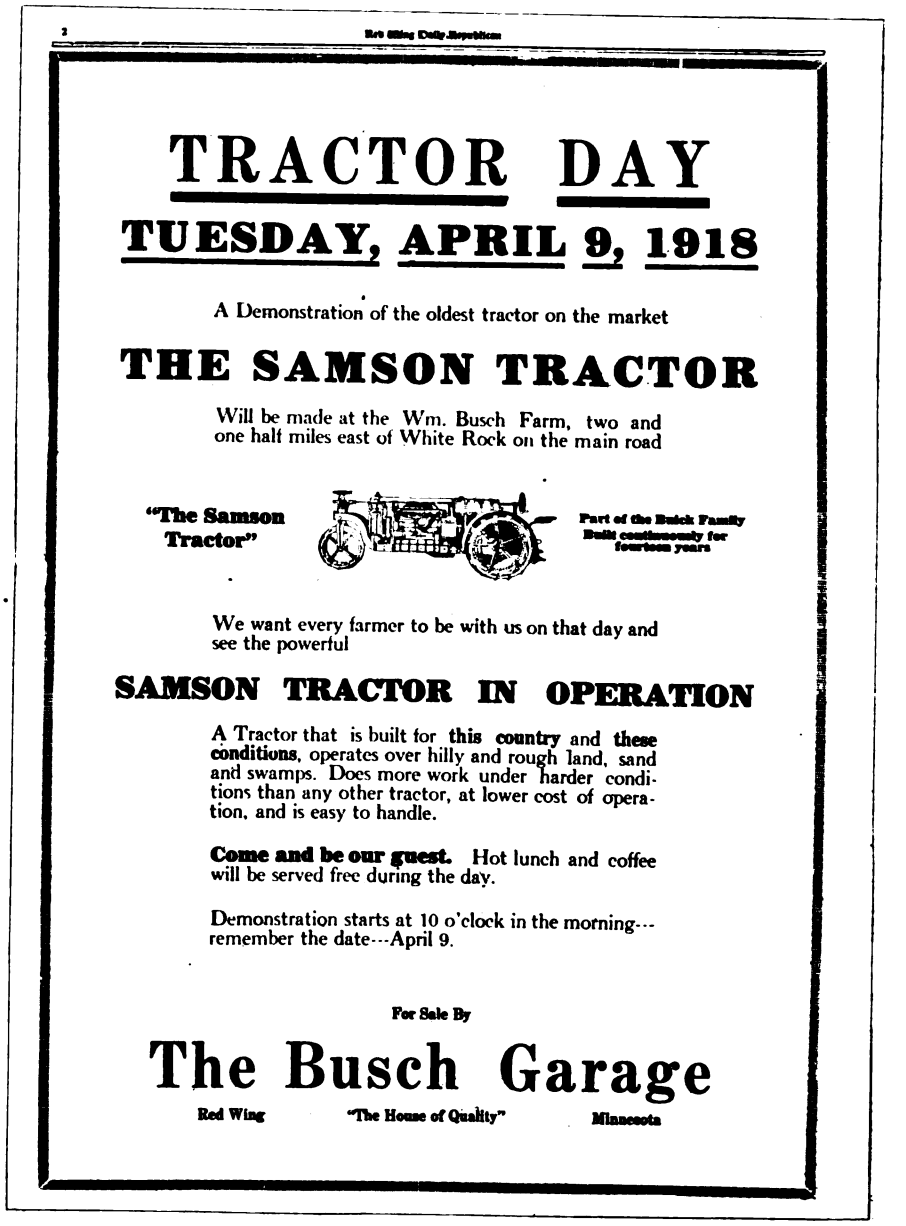
One shows a dealer who is SELLING tractors in a salesroom on Broadway and is placing his wares on the large and small farms in that area that feeds New York City with its garden produce.

The advertisement that is reproduced on this page shows how a car dealer in a 10,000-population town on the Mississippi in southeastern Minnesota, Red Wing, is getting a grip on the tractor business while the business is yet young.

The Busch Garage handles the Buick, Dodge and Chevrolet. The Samson tractor is distributed by the Pence Automobile Co., Minneapolis, which also distributes the Buick over 400,000 sq. miles of the Northwest to 400 dealers. It gives Busch a "line" instead of letting the business be divided among several dealers.

Busch and Sanders, whose story is on the opposite page, both demonstrate on a certain farm and invite the farmers of that vicinity to see the machines work. This is one of the early developed principles of tractor merchandising as done by automobile men. Read the Busch ad.

Dealers who argue that they will wait a few years until tractor design "settles down" should ask themselves where they would be now had they waited 5 and 10 years ago until motor car design "settled down." Don't wait. The tractors of today will plow and do belt work, regardless of what they may be ten years from now. And the dealer who gets in NOW will be an established tractor dealer when the business becomes big. The farmer would rather buy from a dealer who has handled tractors four years than from a dealer who just started in. Get in NOW.



2 Red Wing Daily Republican

TRACTOR DAY

TUESDAY, APRIL 9, 1918

A Demonstration of the oldest tractor on the market

THE SAMSON TRACTOR

Will be made at the Wm. Busch Farm, two and one half miles east of White Rock on the main road

"The Samson Tractor"

Part of the Buick Family Built continuously for fourteen years

We want every farmer to be with us on that day and see the powerful

SAMSON TRACTOR IN OPERATION

A Tractor that is built for **this country** and **these conditions**, operates over hilly and rough land, sand and swamps. Does more work under harder conditions than any other tractor, at lower cost of operation, and is easy to handle.

Come and be our guest. Hot lunch and coffee will be served free during the day.

Demonstration starts at 10 o'clock in the morning---remember the date---April 9.

For Sale By

The Busch Garage

Red Wing "The House of Quality" Minnesota

WHEN the Busch Garage in Red Wing, Minn., wants to demonstrate its tractor it stages a demonstration on some man's farm, invites all the farmers for miles around and serves lunch and hot coffee. Sanders, whose story is on the opposite page, does much the same thing. Try it

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Get ONE Tractor Running

And It Will Sell Others

The Motor Car Dealer Is Best for Tractor Selling

THE car dealer who goes into the selling of tractors has to learn tractor and farm mechanics.

The implement man who takes on tractors has to learn salesmanship.

"But," says W. S. Roberts, Case manager in St. Louis, "it is easier to teach farm mechanics to the dealer than it is to teach salesmanship to the implement man, so the automobile man makes the better dealer if he takes hold of the task and learns those things that he must know."

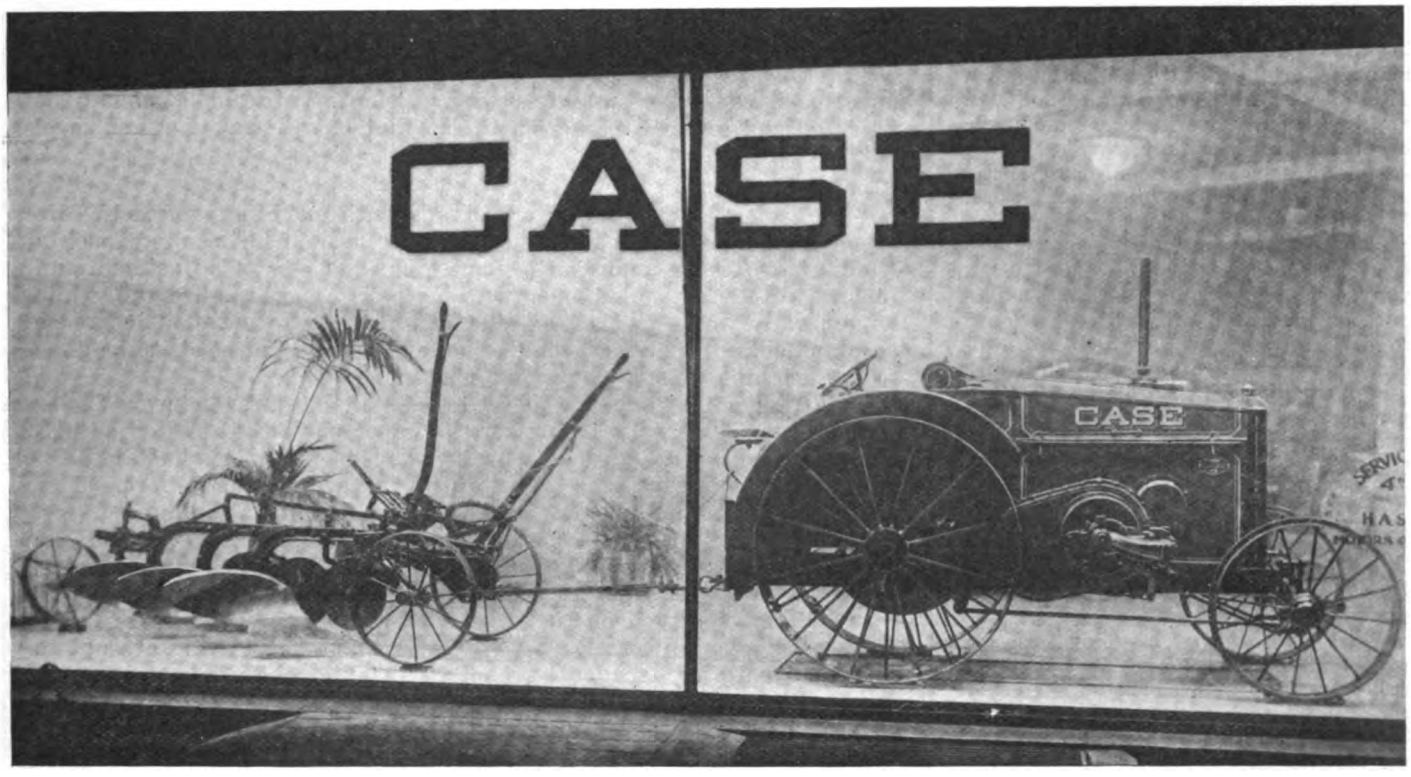
One of the biggest sales factors for the dealers, says Roberts, is to get one tractor running in a certain farming section. This one tractor is better than any show window and makes sales. Roberts has been a long time in the car and tractor business and has studied it. He says:

"We let our salesmen organize a district. He selects the man he wants as dealer in a favorable neighborhood; then he gets one tractor going there, sees that it is well handled and that the owner understands how many things a tractor can do. That tractor is your exhibit. It beats any show window.

"The selling agency means much, of course. The tractor and its possibilities are new to many men and are comparatively new to salesmen. In selecting our selling agents the choice is between the implement man and the automobile dealer.

"Each has his strong points. The automobile dealer is much the best salesman as a rule, but the implement dealer understands the belt possibilities and the

Sanders Is Selling Tractors on Broadway



WHILE tractors are commonly supposed to be used largely in the West they are being sold in the neighborhood of New York City by the H. A. Sanders Motors Corp., which has a Case tractor and Grand Detour plow on display in its window at 1876 Broadway.

Since the first of the year about 50 tractors have been sold to farmers in Connecticut, Long Island, New Jersey and part of New York State.

The display window, while on the famous Broadway, gets results. Many farmers drive on this street, as do wealthy men who have estates out of town. Manager Neal of the tractor department says about 100 people a day drop in to ask questions about the tractor.

The tractors are sold in some instances by Case car dealers and in other instances by car dealers who have dropped the cars and are concentrating on tractors.

Demonstrating is arranged by the Sanders company. An arrangement will be made to work on a certain farm on Tuesdays and Fridays and the farmers within driving radius will be invited to attend. Many sales are made in this way. About 20 tractors are now being used in this work.

It is said that farms as small as 50 acres are using tractors advantageously in the metropolitan area, doing plowing, other field work and all kinds of belt work. Within the metropolitan area are many farms of this size, the produce of which goes to feed the 10,000,000 in and about New York.

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other equipment that goes with the tractor.

"Whichever you choose, he must be trained either in selling or in the uses of a tractor. If the automobile dealer will study the tractor and become interested in it, he is preferred. It is easier to train a man efficiently in a mechanical proposition than in salesmanship.

"But if the automobile dealer goes into the tractor business, or the implement dealer into the automobile business, they must departmentize their businesses.

"Tractors and automobiles are not the same proposition in selling or in use."

Roberts wants it understood that in his remarks he is speaking generally and that he does not for a moment disparage the successful selling of tractors by automobile dealers, nor the accomplishments of Sanders on Broadway, New York, nor had he overlooked the implement men who are successfully selling automobiles. He admits that many men are adaptable and that many implement men have grown into a successful automobile business, just as Roberts has here in St. Louis.

The big things, according to Roberts, are to get the dealer interested, to get him to study his new machine and its possibilities, to get one tractor going in the neighborhood in good hands and then to get the owner of the machine to understand and appreciate the power plant that he has bought.

Roberts is an implement man. He began at the beginning and has been manager of the large St. Louis branch for 10 years. He is an organization man and has been active in local automobile organizations since they started.

He supports the various motor shows and is a leader in promotion work. Likewise, he is keen for tractor demonstrations and last winter he conducted a tractor school at the J. I. Case T. M. warerooms for tractor owners throughout his district. This school was open to all present or prospective tractor owners and was well attended. The work laid out daily was a full day's work and was not calculated as an entertainment, and the man who was not interested in tractors for something besides curiosity did not last long.

Roberts says that the school was excellent business policy. He believes in these things as he does in his tractors. He also believes in reserve power of his organization.

This is his theory in going into the education of his dealers so that they not only can sell tractors, but so that they can see to it that the owner gets full benefit of his machine next winter when the belt use is the big thing. It is not the first sale and not the second that bothers Roberts, but the sales next year, and the sale when the man who buys a tractor wears this one out in honest work and is again in the market, unless before that time his tractor has made him so wealthy that he comes in year after next for a half dozen larger tractors than this first one.

The Case organization has some strong ideas as to what an automobile tractor man, must learn.

Tractorgrams for Motor Car Dealers By W. S. Roberts, Case Manager in St. Louis

Know Plowing Conditions

The dealer should remember that a so-called three-plow tractor, capable of pulling three 14-in. plows 7 in. deep on a level with apparent ease, may find difficulty in handling a two-bottom 14-in. plow, cutting at the same depth in a neighbor's field of approximately the same soil, but hilly land.

Know Size to Sell

The automobile dealer who will make a little study of farm tractors and other farming machinery will soon be in position intelligently to recommend to a farmer the size of tractor he requires, should the farmer already have his full equipment—disc harrows, clod crushers, soil packers, grain drills, harvesters, feed cutters, feed mills, etc.

Forget High Speed

It has been found that the most desirable normal speed for farm tractors is from 2¼ to 2½ m.p.h. Practically all tillage tools are designed to operate at approximately this speed and will do the best work when so used; consequently, an automobile dealer seeking a tractor to sell to his farm friends should not get the idea that he can take great pride in telling the prospect "how fast she can go." There seems to be a general impression among automobile dealers that farm tractors should be much more speedy than horse gaits. There is no justification for this expectation and no good reason why a tractor should race down the field with a plow or other equipment, which when used at a speed in excess of the intended rate will soon be wrecked from misuse.

Know Hitching Facts

An automobile dealer should acquaint himself with the best manner of hitching or pulling plows or other tools. To do good work and operate on the least possible power, a plow, for example, should be adjusted and hitched to the tractor so that it will run true and level without side draft.

As to Service

The farmer, as a rule, is quite handy with machinery himself. He is not afraid to tighten up a nut, or to adjust a bearing or to pack a stuffing box for the pump, or do some other odd jobs of adjustment and repairs. He has handled machinery more or less all his life and, while he generally works in overalls, does not hesitate to get a little grease on his fingers or his shirt when he believes something needs to be done to the machine to save damaging some part.

The automobilist depends more or less on the garageman or dealer who sold him the car to look after the important parts. When adjustments are needed the owner generally has this done. Automobile dealers have made themselves very useful in this way to car owners. They are of the opinion that the tractor owner expects a similar service. Much has been written in motor publications suggesting that no one can give Mr. Farmer such genuine helpful service, if he buys a tractor, as the automobile dealer. This is undoubtedly true.

Preaching too much on the subject of service for tractors to farmers, we believe, will easily scare away good prospects who are apt to conclude that if it frequently requires an automobile or motor expert to keep the tractor going, much trouble can be expected or considerable delay will be experienced or both. Most farmers expect expert help only in a case of serious mishap or accident. Some allow, of course, for absolute carelessness on the part of hired help. The average farmer feels that if he or his boys operate the machine scarcely any trouble will be experienced on account of the extra care the machine will receive at their hands.

Preach Care of Machinery

One big thing automobile dealers can do after entering the tractor business is to impress upon every farmer buying a tractor the importance of sheltering his valuable and expensive machine when not in use.

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What Size Tractor Should You Sell?

On Farms of 80 to 200 Acres *Pulling 3 14-inch bottoms*	8-16 to 12-25
On Farms of 201 to 400 Acres *Pulling 3 to 4 bottoms*	8-16 to 15-30
On Farms of 401 to 800 Acres	10-20 to 30-60
On Farms more than 800 Acres	20-40 to 40-80

THE success which a dealer will attain in the sale of tractors will be measured not so much by the number of tractors he sells as it will be by the number of satisfactory sales he makes. This means, in brief, that the dealer must fit the tractor to the job.

THAT this will depend largely upon him experience proves. The farmer, as a rule, is not competent to judge of the size, style or type which best will meet the conditions to be found on his farm and in a majority of instances the dealer will be called upon to advise.

IT is incumbent upon the latter, therefore, that he know what tractor experience on the farm has been in order that he may be able to advise soundly. His future in the tractor business will depend upon his ability to avoid error in sizing up the individual situation.

Sell the Right Size

DISREGARDING all other factors which might have a bearing upon the determination of the type of tractor which may be most generally adaptable to a particular locality, the first consideration will be the size, the horse power rating, in other words.

Tractors vary in rating from the 5-10 to the 70-120, with all ratings in between those extremes, hence the farmer has a bewildering number to choose from, and unless he knows what experience has determined to be the best size for him he is very likely to go wrong. That this is serious everyone who has had occasion to investigate tractor service knows, because in a large proportion of the cases where tractors have proven to be unsatisfactory the cause assigned is *a mistake in buying one too small or too large for the particular farm.*

This implies that the size of the farm and the size of the tractor which should be upon that farm are related. Generally speaking, this is the fact. Omitting from consideration specialized farming, which calls for specialized tractors, and confining the discussion to general farming under normal conditions, the choice of the proper size of tractor for any given farm narrows down to a few sizes.

Minimum Generally 80 Acres

Few tractors are in use upon farms smaller than eighty acres. Indeed, the tractor is found in very limited numbers on western farms smaller than a quarter section. At the present time the economical minimum seems to be in the neighborhood of 160 acres. Above that there is no limit. Therefore, the western dealer may safely ignore anything under a quarter section in deciding upon the size of the tractor he will recommend for the general trade of his locality.

But tractor experience is establishing an approximate ratio between the size of the farm and the size of the tractor, both as a rule increasing together. The meaning of this fact for the dealer is that he must be guided in the selection of his tractor line by the average size of the farms within his trade territory.

Illustrations drawn from actual farm experience will make this clear. In considering replies received to a questionnaire on tractors sent out recently by Motor World some tendencies and relations are brought out which may be considered to be typical and permanent. Additional validity is lent to this conclusion, because what is revealed by the Motor World questionnaire is confirmed by other and independent investigations, the results of which are available for comparison.

Two hundred and eleven replies from tractor owners were classified as follows:

	Replies
80 to 200 acres	61
201 to 400 acres	80
401 to 800 acres	51
801 and more acres	19
Total replies	211

Some interesting conclusions may be drawn. The 61 who operate tractors on farms from 80 to 200 acres reported 60 tractors and three tractor attachments. Of the tractors 13 are 8-16; two are 9-18; 15 are 10-20; 12 are 12-25; seven are smaller than 8 hp. and 11 are higher than 12 hp.

Evidently on farms of 200 acres and under, and this includes the predominant quarter section type, experience commends tractors rating from 8-16 to 12-25, and pulling three 14-inch bottoms, since 42 out of the 61 in this class own tractors within these limits.

For 201-400 Acre Farms

OF the 80 contained in the class which operates farms from 201 to 400 acres in size, 14 own an 8-16; 22 a 10-20; 26 a 12-25; 10 a 15-30. Four reported sizes below 8 hp. and four sizes above 15 hp. so it appears that 72 out of the 80 in this class selected tractors ranging from 8-16 to 15-30, with the weight of choice leaning toward the higher of these ratings. The number of bottoms pulled by the tractors in this class vary from three to four, with the three-plow gang preponderating. A tendency toward a more powerful tractor, commensurate with the larger size of the farms, is apparent here.

In the next class, with an acreage of 01 to 800 acres, the 51 replies indicate the ownership of 51 tractors and one tractor attachment. Twelve of these are 10-20; three are 12-25; 12 are 15-30; seven are 20-40; three are 25-50 and seven are 30-60. Seven only of the 51 try to farm with a tractor rated less than 10 hp. on the drawbar. The tendency toward a higher powered machine is very marked in this class.

Ninteen tractor owners work farms or ranches above 801 acres in size. Of these, two use a 20-40; two a 22-45; five a 30-60 and four a 40-80. Six only have tractors below 20 hp. Again a progressive increase in the size and power of

(*Continued on page* 59)

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What Your Banker Thinks of You

We have all heard a lot about the relations between the dealer and the banker.

Dealers have complained about the banker.

The banker has not always been nice to the dealer.

So Motor World asked a couple of dozen bankers what they thought about dealers.

We asked them if they ever had a dealer who was a "bad risk" and who later became a "good risk," and if so what he did to get from the wrong side to the right side.

Bankers, you know, are rather conservative men, and the majority of them didn't reveal any information worth while. Several, however, returned letters that are of interest—and here they are.

What the Bankers say:

You Want Too Much

Editor Motor World: We have several times in the past refused credit to automobile dealers. We do not remember of any instance where one of these same parties later was extended credit by us.

We find in our experience that a great many individuals with *limited capital* go into the automobile business and expect their bankers to carry not only their new cars on warehouse receipts but also expect them to discount their conditional sale contracts covering both new cars sold and second-hand cars which have been taken as part payment in the sale of their new machines.

In our minds the principal reason why the majority of these dealers are not considered satisfactory credit risks by banks is:

First—that the dealer generally has limited responsibility himself and therefore his endorsement adds little value to the contracts which he endorses.

Second—owing to competition in this line of business many dealers are foolish enough to take in old cars at excessive valuations, resulting in their profits being tied up in unsalable second-hand cars at inflated values.

Third—while there are many reputable and conservative business men engaged in selling automobiles, we have found that there seem to be a great many irresponsible men in the game who could never conduct any business along lines that would make them a desirable credit risk for a bank.

This bank knows among its depositors several automobile concerns to whom we gladly extend large lines of credit both on new cars and on conditional sale contracts for cars sold. We have confidence in the principals in charge of the business and believe that they are conducting their affairs along conservative and legitimate lines and also they have sufficient responsibility so that their endorsement amply protects us against loss on account of defaulted contracts, etc.

We do not favor the sale of automobiles on the partial payment plan, as we believe that this encourages extravagance on the part of a class of people who can ill afford the expense of purchasing and maintaining motor cars.

We request that neither the name of this bank nor the writer be used by your company.—BANKER.

You Are Not a Good Business Man

Editor Motor World: Your letter of the 14th is received and read with some degree of interest. We have a number of automobile dealers to whom we would not lend money. We have several such dealers to whom we do lend money.

To the best of our knowledge and belief the record of this bank does not show that any of the former class *have ever entered the second class.*

We do not consider that our refusal of loans to the dealers as above stated is because of the class or character of business in which they are engaged, but is based solely upon the strength of their financial statement and their personal previous business record.—BANKER.

Not So Bad

Editor Motor World: We have many automobile dealers as clients of this bank, and we have never had any hesitancy in extending accommodations to them in such amounts as we were justified in doing, the basis for advances being, naturally, on the responsibility of the borrower.

Such business dealings as we have had with automobile dealers we have always found quite satisfactory, and the business as far as this bank is concerned has always proven desirable.—BANKER.

Only Merit Counts

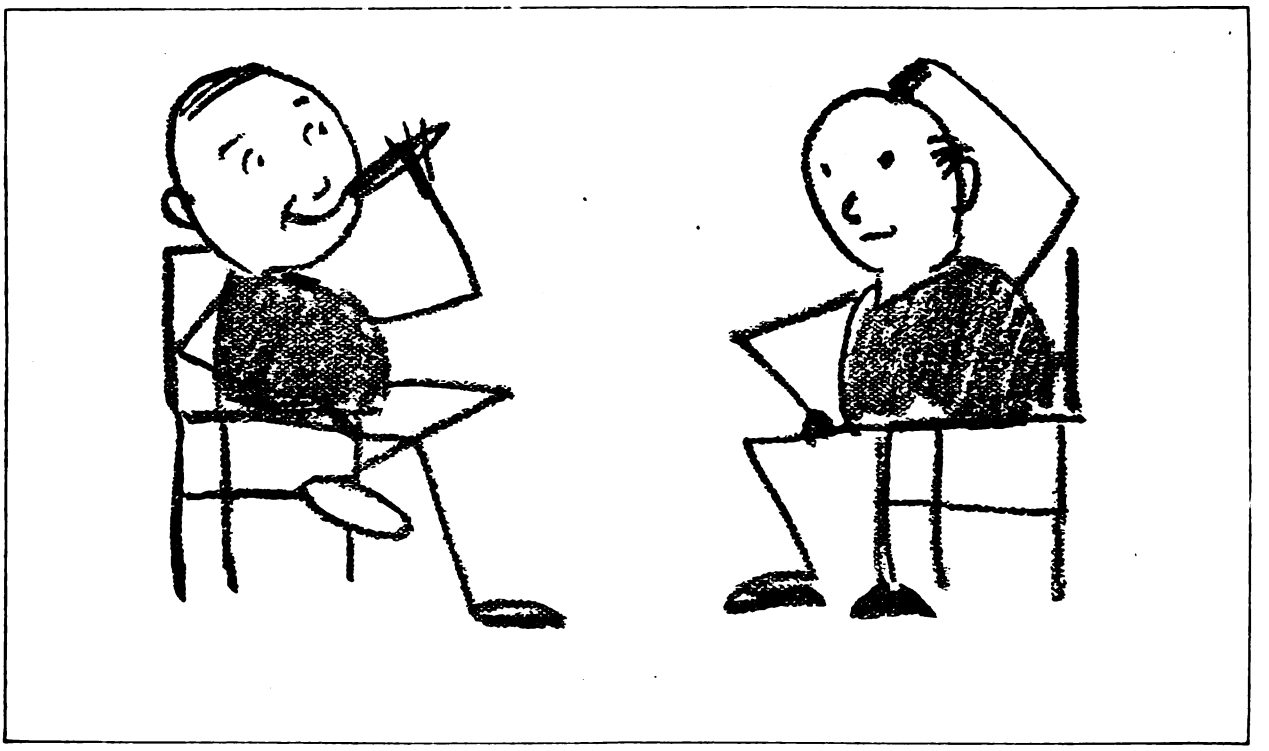
Editor Motor World: We have your favor and in reply would say we have had very little experience in the business outlined in your letter. What applications for loans from automobile dealers we have had have been handled on their merit.—BANKER.

Those Bills of Lading

Editor Motor World: We have had on our list many a dealer to whom we wish we had not lent any money and we have never had the good fortune to have them get in a position where it was an attractive loan.

We are glad, however, if there are any such. Regarding the dealers' complaint of the tightness of bankers, this is no doubt true, for the reason that your dealers' product, being of a particularly hazardous value and good only for its face for a part of one season, and further the automobile dealer generally allowing his profits to be merged into an accumulation of second-hand junk.

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These are some of the reasons why the history of the business of the automobile dealers is replete with bankruptcy and failures, and then the manufacture of automobiles is practically the only business in the world that is conducted on a cash bill of lading basis, and we ask why should banks be called upon to furnish financial assistance to a dealer when the men who manufacture their product will not extend to him one penny of credit.

I believe the day is not far off when the manufacturer will lend more confidence and interest in the dealer who is so important to the distribution of his product, and I am glad to say that in the last few years the dealers themselves have tightened up on their system of selling and are building on more substantial lines, and withal the industry is rapidly shaping into a more attractive form from a credit standpoint.

I believe that the dealer who is systematic in his collection system, cautious in placing his credits and who refuses to take worthless junk as part of his legitimate profit is having no trouble, however, in obtaining a proper line of credit from his banker.—BANKER.

You Are Under-Capitalized

Editor Motor World: We have always carried a large amount of automobile paper, and found the same satisfactory. Our only criticism is that a large majority of the retail dealers are not sufficiently capitalized and expect banks to loan altogether too much money to them. That would, in my opinion, be the principal reason a dealer is refused credit.—BANKER.

First Time Payment Too Small

Editor Motor World: In special reference to the loan risk, would state that our agents for the most part are responsible financially, and while we have discouraged them in offering customers paper for discount, who have not paid a substantial amount in cash on the purchase price, we have as a rule been quite liberal with them.

Money conditions just at present, however, are such that we have felt warranted in accepting only the best names offered by agents, and those have been confined to instances where a good percentage of cash has been paid in on the purchase price.

There appears to be a tendency on the part of the public in general to acquire automobiles regardless of the cost of maintenance, and frequently the buyers are individuals whose financial condition makes the sale to them of a pleasure car an absolute burden, and in view of the effort now being made by every bank to confine its financing of customers to the essentials, we have felt it expedient to require our agents to exercise more than ordinary conservatism in the conduct of their business, and we have found that for the most part they are willing to do so, in view of existing conditions. —BANKER.

Read This

You expect too much.

Your responsibility is limited.

You pay too much for used cars.

You are a poor business man.

You can't give a financial statement.

Your manufacturer won't give you credit.

You are under-capitalized.

You take too small a first time payment.

Gets Close to Buyers

I found out through close study that buyers of big cars like to get personal attention from the head of the house, and so I planned sales along such lines. For example, we had a man some miles away from Boston who was figuring on a new car, and I had talked with him by telephone. Salesmen from other companies had visited him. Then the man got hurt, and was convalescing. The others laid off figuring he would no longer be interested.

One Sunday, with my family, I drove down to pay him a friendly call to extend my sympathy to him and his wife. I explained it was not a business trip, but that I wanted to see how he was getting along, and if there was anything at Boston I could have attended to for him. He was pleased. As we were driving away he came out and said: "I guess you had better send me that new car I looked at some time ago."

On another occasion I went to New Hampshire and called on a man there who had lots of money, but never had a car. It was summer and I invited him for a ride with his family. I sold him a car and when I asked him why he had never bought a car, he said: "Every dealer hereabouts tried to sell me a Ford or a small machine, and I waited until someone came along and had sense enough to know that what I needed was a big car."—Frank E. Wing, Marmon, Boston.

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Accessory Profits Beckon in 1918. Get Yours!

AN address on accessory merchandising delivered in Toronto, Ontario, before the convention of Ontario dealers by Cecil Dixon, sales manager for Hyslop Bros., Ltd., one of Canada's largest jobbers, and distributer of the Cadillac in the Dominion east of Manitoba.

THE automobile accessory business has grown during the past years to such proportions as to cause all but the most careful observers of the business to lose sight of its size and importance. From a pastime of a few years ago it has grown to a full-fledged industry involving millions of capital and employing the services of thousands of men. A portion of this phenomenal business can readily be obtained by every automobile dealer and garageman.

It is generally conceded by those in authority and position to know that the average car owner will spend at least 10 per cent of the purchase price of his car each year in accessories, or a minimum of $60 for each owner. Working on this basis with 200,000 car owners in Canada to-day there is a potential accessory business for 1918 aggregating over $12,000,000, figuring this very conservatively by taking the average price of the car at $600 and that each and every car owner will buy $60 worth of accessories.

$60 to Each Car

This estimate of $60 minimum is, I believe, quite reasonable. For Ontario, with a total of approximately 100,000 car owners, the likely volume of business in accessories on this basis would be $6,000,000. To find out how much business there is in your locality *count the number of cars and multiply by $60 each, also plus additional quantity for summer tourists.*

These figures would not include tires, gasoline and cylinder oil, nor take into consideration the number of cars through new sales this spring. If you do not plan to get this business in 1918 some one else in your town will do so.

Somebody said "The secret of success lies in careful study of yourself and your opportunities." Surely this is the opportunity for automobile dealers to get their portion of the accessory business. The buying public's demands are pretty well confined to three features—cost, usefulness and attractiveness of the accessories—and I think you are well advised in compassing these three features in order to serve the popular demand.

Your easiest profits are those made through keen, judicious buying of the standard articles at fair prices and selling on the same basis and not from the big red headlines "Bargains." To decide the lines of accessories to put in stock, the best guide is to stock accessories for cars that require additional equipment in order to obtain more comfort and ease in operating them.

Such lines as tire chains, brake lining, bumpers, spark plugs, lamp bulbs, tire carriers, jacks, horns, clocks, tool boxes and tools are always good stock. Seat covers are much in demand this season, and my own concern has sold more seat covers to date than any other season, *which would indicate to me that many car owners are dressing up their old cars in lieu of exchanging them for new ones as is customary with many owners.*

It is just possible there may be a shortage of new cars, and an increase in the use of used cars would mean that there is a larger proportion of motor cars in use which will need new equipment. Many of these cars will be overhauled and many new accessories or attachments of some kind added. For these reasons we believe that the sale of accessories will be exceptionally brisk this season.

In the handling of automobile accessories it is absolutely essential that the store be kept in a clean, tidy, up-to-date and well ventilated condition. If your store is not in this condition it should be put in shape at once.

The quantity of stock should be in proportion to the number of each article you sold during the past year, providing you kept such a record or can get it from your invoices. By keeping a simple stock record of the quantities of accessories used during the season you can readily form a basis for the following season and know exactly the quantities to buy at the right time during the touring months. *This suggestion, if followed, will prove of much benefit in gauging the quantity to buy at any time.*

Get Quick Turnover

When buying your stock due consideration should be given to the prospects for selling such an article in your locality and limited to the extent of your ability to make quick turnovers. *Buy for normal requirements only—do not speculate.*

It is advisable to carry an assorted or complete line of accessories, but avoid an over-stock which costs money in the way of interest and discounts and increases the expenses. The greatest volume of business being transacted in the spring and summer, it is necessary that stocks be kept fairly high during these months and *reduced in quantity before the winter sets in.*

The dealer with the goods can do business; without the stock he is handicapped.

A very good gross profit may be obtained from the sale of accessories if the dealer maintains the resale prices, and in almost every case the goods are worth the price that has been fixed and should not be sold at any other. If the price is cut on an article it is difficult to re-establish it, and not only is the profit on that article lost but the profit on other articles as well. Get your profit now and create a reserve for possible lean years. Don't let your customers pick you for a few here and there on purchase of his supplies.

Present conditions demand that you anticipate your needs at least two or three weeks in advance, owing to railroads being so overburdened in handling materials for Government use, and factories handicapped in manufacture and transportation.

Accessory Business Staple

The automobile accessory business is staple and not subject to serious fluctuations as is sometimes the case with cars. I have known cases where car contracts were cancelled with little or no notice, and had it not been for the dealer having a nice volume of business in accessories it would probably have forced him to close or caused a very serious loss.

There is one feature to which I would call your particular attention and that is the danger of special salesmen or manufacturers' agents painting such a rosy picture about some one isolated article that you may over-buy and over-stock. While some of these articles may have merit, the quantity you buy should be gauged entirely on the number that you can sell to the car owners in your immediate locality. Buying a greater quantity than you can turn over in a reasonable time will tie up capital and act as an anchor on the other lines of accessories.

The volume of business in automobile accessories is best built up and increased by stocking *standard lines of well advertised goods and on which there is a reasonable margin of profit.* A good many articles that carry so-called "long profit" cannot be moved in large quantities and

(*Continued on page* 59)

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You Should Sell Accessories Because—

YOU should sell accessories for the same reason the drug store sells candy, safety razors and ice cream soda.

For the same reason the grocery store often sells meat.

For the same reason the cigar store sells newspapers.

The reason these businesses operate these "outside" activities is that the customers are in the store anyway and the "outside" activity nets an added profit. The drug store, the grocery man and the cigar store do not depend on their original staples for their business.

Neither should you—no matter whether you be car dealer or garageman.

The customers who need accessories are about your place or business all the time. Why not sell them things they need? Why compel them to go somewhere else and give somebody the profit they would rather give you if you were willing to take it?

The packer uses every last bit of the pig and has developed whole industries out of what used to be a by-product.

Gasoline used to be a by-product of the petroleum business. Today the tail comes somewhere near wagging the dog.

Plants that started as by-products are today making explosives that will help win the war.

Can you as a good business man afford not to use the by-products of YOUR business?

We are all talking about saving on this and conserving on that at the same time that thousands of us are overlooking the by-products of our businesses.

A by-product is something that is produced unavoidably in making something else. Therefore, when you draw to your store people who want motor cars and motor car accessories and sell them nothing but the car you are throwing away a by-product. Can you afford to do it?

You have created a market for additional goods when you sell a car. Why make it necessary for the prospect to go elsewhere to get these additional goods?

You need all the revenue you can get. Why pass up a chance to sell accessories, no matter how much you have believed your business was in cars, in big merchandise, in sales that run into hundreds and thousands of dollars?

At the same time that you work out labor savings in your shop and office, and take on trucks and other things, don't overlook the accessories. Some houses that started with accessories as a side-line are today getting most of their profits from these small item sales.

To Make Money on Accessories You Must—

1—If your place isn't clean and store-like make it so at once, even if you never intend to sell accessories. Blush with us as we read from a hardware trade paper: "The garages carry most of the things I want in an accessory way, but you know how it is in a garage—it isn't like buying in a store. They don't have things displayed much, and instead of clerks you may have to buy from a mechanic whose hands blacken the things he handles, and he probably doesn't like the selling end of the job anyway. The hardware store really has a good deal of advantage when it comes to merchandising supplies and accessories."

Was this man talking about YOUR place of business? Let's take the reputation of grime and dirt and inefficiency off the motor car and garage business. Let's have a trade we can be 100 per cent proud of.

2—Install an accessory department. You probably have accessories now—but maybe they are under the backstairs in a stockroom. Get them out. Set off one corner of your place, put in shelves, a display case and have a real department, even though it be small. Get the goods out where they can be seen.

3—Have a display window. If you haven't one build one. If you have one use it. Here is another chance for saving and conservation by some people—this use of windows for which they are paying good money. Put in attractive displays and change them every week. Make the window a display and not a stockroom. Wash the window every week or oftener if it needs it.

4—Have a runway cabinet. If you haven't one build one. Cut a hole in the wall alongside the driveway, or erect a showcase of some kind, and install invisible lighting at the top. It is a cheap and easy affair to build. Change the display here every week. Show the things the car owners need. If yours is a large service department set a display case on the floor near the door. Use cards and prices. Big dealers have found this highly profitable. Get the goods out where the car owner can't help seeing them.

5—Carry accessory newspaper advertising. Push seasonable goods. Always get in something about your tires.

6—Go over your stock. If there is any junk or slow-moving article get rid of it. Sell it on a bargain counter or any way to get rid of it. But try the runway cabinet first and see if that won't move it.

7—Make a personal effort to sell accessories. Make it some man's duty, or the duty of several men, to push accessories. When a man buys gasoline show him a windshield cleaner or some other device as you give him his change. When he gets a tire repaired show him chalk, patches, a jack and everything connected with tires. This is one of the most profitable forms of accessory-selling effort.

8—In your mail to customers enclose advertising on accessories.

9—Inspect cars in your garage and service station for accessory needs and tactfully approach the owners on the subject.

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Color Combinations for Your Windows

HOW TO USE THE CHART—Supposing you want to have your window sort of red and quite subdued. Look in the "Reds" division of the chart. The subdued combinations are in the three columns at the left-hand side of the chart. Supposing you choose to use "maroon" as your principal "red" color. Find "maroon." You learn that "orange" makes a good combination and that if you want a third color you should use "pure red." Now, if you want a "striking effect" you look similarly on the right side of the chart and find you should use "pure blue" and "gold" with your "maroon." In all these combinations the best effect is obtained by making the "first" color predominant, the "second" less predominant and the "third" subordinate to the other two.

Subdued Effects			REDS	Striking Effects		
1st Color	2d Color	3d Color		1st Color	2d Color	3d Color
Pink	Violet	Maroon		Pink	French Blue (Grey Blue)	Green or Violet
Pure Red (Spectrum Red)	Russet	Orange		Pure Red (Spectrum Red)	Green	Grey
Terra-cotta (Yellowish Red)	Light Yellow	Chocolate		Terra-cotta (Yellowish-Red)	French Blue (Grey Blue)	Scarlet
Wine (Purple-red)	Pure Blue	Pure Red		Wine (Purple-Red)	Pale Blue	Yellow
Maroon	Orange	Pure Red		Maroon	Pure Blue	Gold
			BLUES			
Pale Blue	Violet	Pearl or Slate		Pale Blue	Crimson	Tan
French Blue (Grey Blue)	Wine	Violet		French Blue (Grey-Blue)	Terra-cotta	Scarlet
Pure Blue (Spectrum Blue)	Dark Green	Pale Yellow		Pure Blue (Spectrum-Blue)	Orange	Crimson
Yale Blue	Green	Sage (Greyish Green)		Yale Blue	Maroon	Dark Grey
Navy	Violet	Dark Red		Navy	Yellow	Crimson
			BROWNS			
Cream	Tan	Orange		Cream	French Blue (Grey Blue)	Yellow
Tan	Terra-cotta	Crimson		Tan	Violet	Maroon
Golden Brown	Russet	Pure Red		Golden Brown	Light Green	Scarlet
Chocolate (Reddish-Brown)	Maroon	Cream		Chocolate (Reddish-Brown)	French Blue (Grey Blue)	Pure Red
Dark Brown	Scarlet	Orange		Dark Brown	Plum (Reddish-Purple)	Scarlet
			GREYS			
Pearl (Light Grey)	Violet	Pure Blue		Pearl	Yellow	Violet
Army Grey (Medium Blue-Grey)	Greyish Blue	Violet		Army Grey (Medium Blue Grey)	Orange	Pure Red
Slate (Dark-Blue-Grey)	Green	Sage (Greyish Green)		Slate (Dark Blue-Grey)	Scarlet	French Blue (Grey Blue)
Drab (Brownish Grey)	Orange	Pure Red		Drab (Brownish Grey)	Pure Blue	Orange
Dark Grey	White	Black		Dark Grey	Green	Crimson
			MISCELLANEOUS			
Yellow	Green	Sage		Yellow	Blue	Terra-cotta
Orange	Russet	Red		Orange	Violet	Slate
Light Green	Amber	Cream		Light Green	Red	Sage
Dark Green	Orange	French Blue (Grey Blue)		Dark Green	Orange	Scarlet
Violet (Blue Purple)	Pale Blue	Pink		Violet (Blue-Purple)	Amber	Light Green
Plum (Reddish-purple)	French Blue	Crimson		Plum (Reddish-purple)	Green	Gold

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The color charts on these two pages were worked out by "The Haberdasher," a trade paper in that field, to show men how to combine colors in clothing. The charts apply equally well to window combinations and are reproduced here through the courtesy of "The Haberdasher"

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Get the Right Colors in Your Windows

Check your window display, your car colors, or your furniture at home on these charts

"B" means BLEND, or related colors. "C" means CONTRAST, or non-related colors.

HOW TO USE THIS CHART—To learn whether two colors go well in combination: Let us illustrate by "pink" and "tan." Find "pink" at the side of the chart and "tan" at the top. Run down the "tan" column until you come to the horizontal column in which "pink" is located. In the little square it says: "Bad C," which means the combination is "bad" and is a ("C") contrast. To find what goes best with "pink" consult the chart on the opposite page. Both charts are printed through the courtesy of *The Haberdasher.*

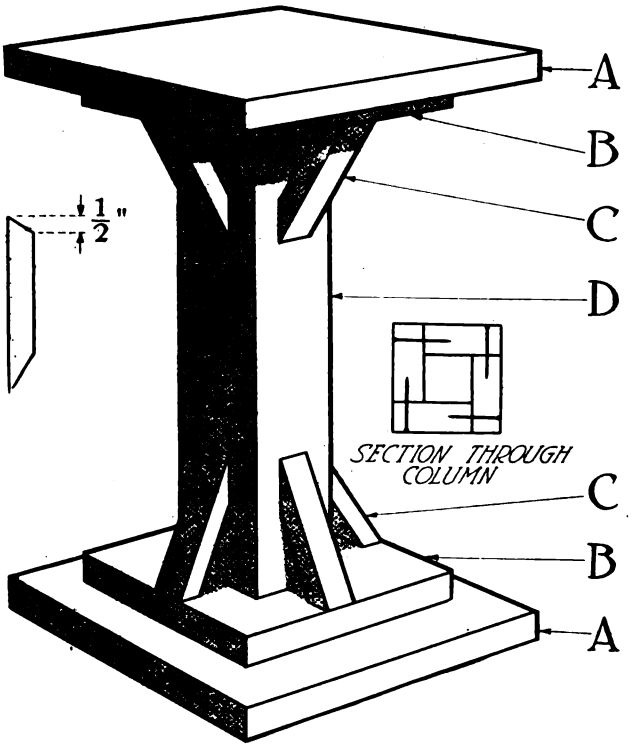
	DARK BROWN	BROWN	TAN	CREAM	GREY	LAVENDER	PURPLE	HELIO OR RED PURPL	WINE OR MAROON	RED	PINK	ORANGE	YELLOW	OLIVE	GREEN	LIGHT GREEN	MYRTLE GREEN	NAVY	BLUE	LIGHT BLUE
LIGHT BLUE	BAD C	BAD C	GOOD C	GOOD C	GOOD B	GOOD B	BAD B	BAD B	BAD C	BAD C	GOOD C	BAD C	BAD C	GOOD C	BAD B	GOOD B	GOOD B	GOOD B	GOOD B	
BLUE	GOOD C	GOOD C	GOOD C	GOOD C	GOOD B	GOOD B	GOOD B	GOOD C	BAD C	GOOD C	BAD C	GOOD C	GOOD C	GOOD C	GOOD B	GOOD B	GOOD B	BAD C		GOOD B
NAVY	GOOD C	GOOD C	GOOD C	GOOD C	GOOD B	GOOD B	GOOD B	GOOD C	GOOD C	GOOD C	BAD C	GOOD C	GOOD C	BAD C	GOOD B	GOOD B	GOOD B		BAD B	GOOD B
MYRTLE GREEN	BAD C	BAD C	GOOD C	GOOD C	GOOD B	BAD B	GOOD B	GOOD C	BAD C	GOOD C	BAD C	BAD C	GOOD C	BAD B	GOOD B	GOOD B		GOOD B	BAD B	GOOD B
LIGHT GREEN	GOOD C	GOOD C	GOOD C	GOOD C	GOOD B	GOOD B	GOOD B	GOOD C	GOOD C	GOOD C	GOOD C	GOOD C	GOOD B	GOOD B	GOOD B		GOOD B	GOOD B	GOOD B	GOOD B
GREEN	GOOD C	GOOD C	GOOD C	GOOD C	GOOD B	GOOD B	GOOD B	GOOD C	GOOD C	GOOD C	GOOD C	GOOD C	GOOD B	GOOD B		GOOD B	GOOD B	GOOD B	GOOD B	BAD B
OLIVE	GOOD B	GOOD B	GOOD B	GOOD C	BAD C	GOOD C	BAD C	BAD C	GOOD C	GOOD C	GOOD C	GOOD B	GOOD B		GOOD B	GOOD B	BAD B	BAD C	GOOD C	GOOD C
YELLOW	GOOD B	GOOD B	GOOD B	GOOD B	GOOD C	GOOD C	GOOD C	GOOD C	GOOD C	GOOD C	BAD C	GOOD B		GOOD B	GOOD B	GOOD B	GOOD B	GOOD C	GOOD C	BAD C
ORANGE	GOOD B	GOOD B	GOOD B	GOOD B	GOOD C	BAD C	GOOD C	BAD C	BAD C	GOOD B	BAD C		GOOD B	GOOD C	GOOD C	GOOD C	BAD C	GOOD C	BAD C	BAD C
PINK	BAD C	BAD C	BAD C	GOOD B	GOOD C	GOOD B	GOOD B	GOOD B	GOOD B	GOOD B		BAD C	BAD C	GOOD C	GOOD C	GOOD C	BAD C	BAD C	BAD C	GOOD C
RED	GOOD B	GOOD B	BAD C	GOOD C	GOOD C	BAD C	BAD B	GOOD B	GOOD B		GOOD B	GOOD B	GOOD C	GOOD C	GOOD C	GOOD C	GOOD C	GOOD C	BAD C	BAD C
WINE OR MAROON	GOOD B	GOOD B	GOOD C	GOOD C	GOOD C	BAD B	GOOD B	GOOD B		GOOD B	GOOD B	BAD C	GOOD C	GOOD C	GOOD C	GOOD C	BAD C	GOOD C	BAD C	BAD C
HELIO OR RED PURP	GOOD B	GOOD B	GOOD C	GOOD C	GOOD B	BAD B	GOOD B		GOOD B	GOOD B	GOOD B	GOOD C	GOOD C	BAD C	GOOD C	GOOD C	GOOD C	GOOD C	GOOD C	BAD B
PURPLE	GOOD B	GOOD B	GOOD C	GOOD C	GOOD B	GOOD B		GOOD B	GOOD B	BAD B	GOOD B	GOOD C	GOOD C	BAD C	GOOD C	GOOD C	GOOD C	GOOD B	GOOD B	BAD B
LAVENDER	GOOD B	GOOD B	GOOD C	GOOD C	GOOD B		GOOD B	BAD B	BAD B	BAD C	GOOD B	GOOD C	GOOD C	GOOD C	GOOD B	GOOD B	BAD B	GOOD B	GOOD B	GOOD B
GRAY	BAD B	BAD B	BAD B	GOOD B		GOOD B	GOOD B	GOOD B	GOOD C	GOOD C	GOOD C	GOOD C	GOOD C	BAD C	GOOD B	GOOD B	GOOD B	GOOD B	GOOD B	GOOD B
CREAM	GOOD B	GOOD B	GOOD B		GOOD B	GOOD C	GOOD C	GOOD C	GOOD C	GOOD C	GOOD B	GOOD B	GOOD B	GOOD C	GOOD C	GOOD C	GOOD C	GOOD C	GOOD C	GOOD C
TAN	GOOD B	GOOD B		GOOD B	BAD B	GOOD C	GOOD C	GOOD C	GOOD C	BAD C	BAD C	GOOD B	GOOD B	GOOD B	GOOD C	GOOD C	GOOD C	GOOD C	GOOD C	GOOD C
BROWN	GOOD B		GOOD B	GOOD B	BAD B	GOOD B	GOOD B	GOOD B	GOOD B	GOOD B	BAD C	GOOD B	GOOD B	GOOD B	GOOD C	GOOD C	BAD C	GOOD C	GOOD C	BAD C
DARK BROWN		GOOD B	GOOD B	GOOD B	BAD B	GOOD B	GOOD B	GOOD B	GOOD B	GOOD B	BAD C	GOOD B	GOOD B	GOOD B	GOOD C	BAD C	BAD C	GOOD C	GOOD C	BAD C

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NOTE—White in conjunction with a color intensifies that color. Black has the opposite effect. When three colors are used to obtain a contrast, a more pleasing effect will result if two of these colors are blends and the third is a contrast than if three contrasting colors are combined. Any three blends, however, may be used together. In these harmonies the best effect is obtained if one color predominates, the second color is less prominent and the third color is subordinate to the others

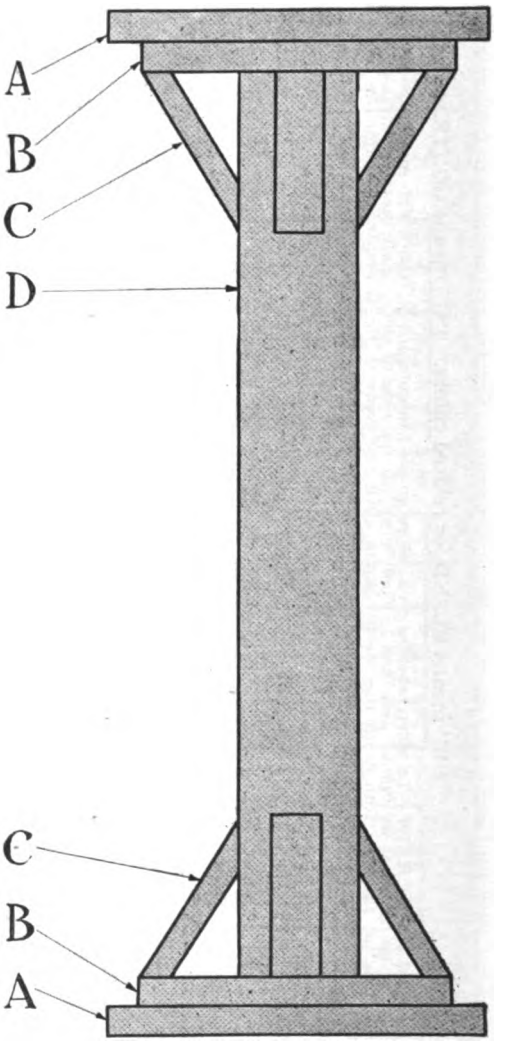
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Make Your Own Window Display Fixtures



Tools Required

Pencil	Hammer
Square	Planes
Saw	Finishing Nails



For 12-in PEDESTAL		
PART	NO. REQD.	SIZE
A	2	10" x 10" x 7/8"
B	2	8" x 8" x 7/8"
C	8	5" x 1 1/2" x 7/8"
D	4	8 1/2" x 2" x 7/8"

For 18-in. PEDESTAL		
PART	NO. REQD.	SIZE
A	2	10" x 10" x 7/8"
B	2	8" x 8" x 7/8"
C	8	5" x 1 1/2" x 7/8"
D	4	14 5/8" x 2" x 7/8"

For 24-in. PEDESTAL		
PART	NO. REQD.	SIZE
A	2	12" x 12" x 7/8"
B	2	10" x 10" x 7/8"
C	8	6" x 1 1/2" x 7/8"
D	4	20 1/2" x 3" x 7/8"

For 36-in. PEDESTAL		
PART	NO. REQD.	SIZE
A	2	12" x 12" x 7/8"
B	2	10" x 10" x 7/8"
C	8	6" x 1 1/2" x 7/8"
D	4	32 1/2" x 3" x 7/8"

PERHAPS you have around your garage or service station the boards required to make these stands. Look around and see if you haven't odds and ends of pine or oak or some wood suitable for this work. The work can be done in spare time, if you have any these days. If you haven't, the time is well spent anyway, for these fixtures are a window trimming necessity. The dimensions, "12-in. pedestal, 18-in. pedestal," etc., refer to the height. Make neat jobs and stain to look like oak. In using these the shorter pedestals should be placed at the sides and front and the larger ones at the center and rear, as a general rule, although variations may be worked out. You should also have on hand some cheap draping material to drape over these, as has been illustrated in the windows shown in Motor World's Window Service Department. Look in any dry goods, shoe or department store window and note how pedestals such as these are used.

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You Can Sell More

If You Use These

ACCESSORY SALES IDEAS

Their Troubles His Lead

One of our salesmen, when we were introducing a starting device for Ford cars, had cards printed, and as he drove about the city, or walked, whenever he saw anybody having difficulty starting his car he would hand him a card. On it was printed: "The ..... starter would do that for you. Chanslor & Lyon sell .... starters."—Harry Mason, Chanslor & Lyon, Los Angeles.

Demonstrated in Theater

To introduce a new type of tire wrench a group of salesmen organized a team to compete against any other in making quick tire changes. The demonstrations were put on as added attractions at a local theater. The members of the team wore jumpers, and when they turned to leave the stage following the demonstration the audience read, "The ..... tire wrench did it," printed on their uniforms.—Guy West, Western Rubber & Supply Co., Los Angeles.

Issues a Guide Book

Brock's Garage, Trenton, N. J., has issued a 48-page guide book, 9 by 4 in., showing routes around New Jersey. The book also includes a description of Brock's place of business. On the front cover of the book is a photograph of the building, and there is a statement as to the facilities Brock has for taking care of transient tourists.

Selling Fire Extinguishers

One dealer took a bunch of packing boxes out in the street in front of his garage one Saturday afternoon when a goodly number of car owners were in town and set them on fire. Then after the fire had attracted a crowd he took a fire extinguisher and extinguished the fire, all the time telling the crowd that was gathered around how important it was that they have a fire extinguisher on their car.

Afterwards when he succeeded to that territory himself, he developed a plan of selling to the schools in the district, and his idea in this was primarily to teach the children how to operate fire extinguishers with the idea that they would go home and talk about it, and inasmuch as about 50 per cent of their parents were owners of automobiles their parents would thus learn of the value of the fire extinguisher and in this way a demand for a still larger number would be created among car owners.—P. R. MacDonald, Gibson Co., Indianapolis.

Calls on New Owners

The most effective way to sell accessories is to secure a list of every car bought and call upon the buyer as soon as it is delivered and present a line needed. Usually the owner is in a receptive mood and desirous of adding everything desirable. I strongly favor personal solicitation outside in handling accessories.—D. U. Smith, Bloomington, Ill.

Money Back Works

The money back guarantee is the most effective accessory idea to my knowledge. The knowledge to a buyer that any article he may purchase can be returned and money refunded, if not entirely satisfactory, is the most effective means to attract patronage that I know of.—Bernard B. Smith, Bloomington, Ill.

Counter Displays Pull

The most effective accessory idea that ever reached my observation is the cut-out vacuum tank feed, which can be set upon a show case. Buyers can quickly see the principle of the device and also how effectively it works. While in operation, it is the most successful salesman I know of and attracts more attention and secures greater results than anything I have ever noticed to make sales.—W. L. Hinkle, Bloomington, Ill.

Show the Warehouse

I sell accessories by handling standard, nationally advertised goods, by making the customer sure he is getting fair treatment, and by making satisfactory adjustments of all complaints. I find it pays to show people through my warehouse to give them extra interest in accessories.—J. W. Foster, Foster Auto Supply Co., Denver.

Never Argues

I refuse to knock any competitor's goods mentioned or to argue with a customer about what some other goods will or won't do. I show him what ours will do and leave it up to him.—Quinn & McGill Motor Supply Co. salesman, Denver.

Get This, Boys

To sell accessories in a garage keep a neat display, and then watch the storage customers and tactfully suggest articles you are sure will satisfy. A customer brought a new car to our garage for two nights, and when he left his bill was $108 instead of $1.—I. B. Allen, Central Garage, Denver.

Demonstrates the Goods

A garage offers wonderful chances to sell accessories and add large profits to the business. You have a fine chance to demonstrate. I sell a great many Silverbeam searchlights that way.—I. B. Allen, Central Garage, Denver.

Make Goods Fit Purpose

In selling accessories I sell everything for its intended purpose, not for something else.—A Quinn & McGill Motor Supply Co. salesman, Denver.

Thank You

One investment that repays over and over again its cost of $24 a year in the accessory business is maintaining 12 regular subscriptions to Motor World for the benefit of our sales and shop force.—Quinn & McGill Motor Supply Co., Denver.

Marks Only Own Goods

We never put our own brand upon any accessory that we do not make ourselves. This guards against getting our line condemned because somebody else's sparkplugs with our brand on might happen to go wrong.—Quinn & McGill Motor Supply Co., Denver.

Keep Departments Separate

To make the accessory business win, keep every department segregated and make it separately pay profits. This applies particularly to battery service or any shop department.—J. D. Quinn, Quinn & McGill Motor Supply Co., Denver.

Sell Advertised Goods

We handle well advertised goods, and make sure they come up to their adver-

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tised claims.—J. D. Quinn, Quinn & McGill Motor Supply Co., Denver.

Customer Always Right

To sell accessories follow the late Marshall Field's motto, "The customer is always right." This cost us $46 last year in things "put over" on us, but it brought many times that in trade we would not have had otherwise.—J. D. Quinn, Quinn & McGill Motor Supply Co., Denver.

Keep Salesmen Enthusiastic

To sell accessories get every salesman enthusiastic about your goods, but also teach him to let the customer sell to himself.—J. D. Quinn, Quinn & McGill Motor Supply Co., Denver.

Quick Service Garages

The tourist dislikes the service he gets in some small towns when he is obliged to stop over night. He finds a poor garage and slow service. Let some enterprising garageman in a town where better service is needed secure a vacant lot near the hotel, erect a tent, build a wash rack and get all the tourist business. His quick service would be his big business getter. Of course, if he had a building of his own advantageously located he could operate without the tent. —Anonymous.

Sells Car with Accessories

J. T. Conaghan of Pekin, Ill., whose delivery of Ford cars will be way below what he could possibly sell, is equipping each car with most all of the accessories that a man buying a Ford car would use, and of course cars so equipped are the only ones he has and can make delivery on.

This enables him, in addition to the sale of the Ford car, to realize on the sale of the accessories which otherwise he might not get, and the fellow who wants Ford cars without any accessories on it whatever will have a mighty hard time getting delivery in his territory.

The idea may seem a little bit of taking advantage of the situation, but inasmuch as the dealer has to pay overhead and is, you might say, entitled to all the business he could get rather than the sales on what few Ford cars he could get delivery on, we believe he is justified in taking this stand.—The National E & A Supply Co., Theo. Bass, Peoria, Ill.

Personal Contact at Curb

The best plan I know of for a new store is for the proprietor to personally sell the gas at the curb. I find that the most successful stores have started their business in this way. When a business is once under way, this is no longer necessary, and when the business is built up it is quite impossible for the proprietor to do this.

Personal contact with the customer, a clean store, frequently changed window displays and one fair price to all, and that price in plain figures, is a hard combination to beat.—Ed. A. Bowman, E. A. Bowman Co., Detroit.

Drive on Bumpers

The Boston dealer of cars kept a record of all the bumpers sold by each one of his salesmen when they made the sale of a car. If they did not average a certain high percentage of bumpers to car sales, no matter what their record of car sales was, they were fired. The results of this method of really selling accessories increased the sale of the one item, bumpers, more than 1000 per cent. This plan drove the last nail in the coffin of the old bug-a-boo, "you have to give a man accessories when you sell him a car; you can't possibly sell him accessories."—Carolinas Auto Supply House, Jos. G. Fitzsimons, Charlotte, N. C.

Best Mail Order House

If the dealer wants to sell accessories and is willing to devote to them some of the time usually used in sales of cars, keeps his stock on display and in good condition, and has a sales force able to present the various accessories intelligently, there is surely no reason why the dealer cannot command the accessory business. A great many of the accessory orders going to catalog houses would be side-tracked if the goods were attractively displayed in local stores.—Morley-Murphy Hardware Co., R. E. St. John, Green Bay, Wis.

Spring Drive Window

Our "spring drive" window has brought wonderful results. As a sales stimulator it is hard to beat. We appeal to the car owner driving by. If he needs the accessories displayed our display calls the fact to his attention. The window shows pictures of a car in the five processes of being cleaned. The equipment and supplies used are displayed.—Chanslor & Lyon Co., Seattle.

Use National Advertising

We always take advantage of national advertising. For instance, when some nationally known journal is advertising some accessory, we display the same accessory in our windows.—Chanslor & Lyon Co., Seattle.

Let the Goods Work

Window displays are changed frequently at the Kelly-Springfield Tire Sales Co., Hartford, Conn. A specialty is made of Ford supplies. Lenses, lamps, horns and brake lining are not allowed to remain on the shelves when they can be working assets in the window.

Demonstrations Sell Goods

Demonstrations of articles for sale are made by the E. J. Todd Rubber Co., 274 Trumbull Street, Hartford, Conn. A patented garage light with a reel on which the cable is wound up on being demonstrated resulted in many sales despite that the article sold for a good price.

Accessories Boost Volume

Accessories fill in the blank spaces when there are no cars on hand—or even when there are cars—and impart a merchandising tone. They draw attention. The Elmer Automobile Co., Ford distributer, with eleven stores in northern Connecticut, has installed accessories. They always arrest attention and result in sales. Considerable business is picked up that would go elsewhere.

Keep the Old Customers

In running through the statements of any month we sort out separately those slips which show sales during the past month and those on which no sales are recorded. For each blank statement, indicating that the customer has bought nothing from us during that period, we type a polite inquiry as to why we have been unable to serve the customer during this time. It sometimes happens that the customer thinks he has a grievance. If he has, we want to rectify it. We are harder after keeping customers than for getting new ones.—Clarke G. Powell, Powell Supply Co., Omaha.

Sell "Live" Stock

Our records show at any time what any particular salesman has done during the past month. They show not only his volume of business, but also what class of goods he sold, whether tires, brake-lining, spark plugs or what. They also show what he has not sold. Some men, we found, were simply handing out what was called for, and which required no salesmanship to dispose of. Others were eager to show the customer what was newer and better than what the customer had been in the habit of getting. Constant checking is not only a means of being able to advise the salesman, but is also a stimulus to his efforts.—Clarke G. Powell, Powell Supply Co., Omaha.

How to Sell Tires

I keep on tab for my salesmen a list of all owners of motor cars in Omaha, arranged in the order of the license numbers. When one of my men sees on the street a car on which there is a bad tire, for instance, he takes the license number at once and turns in this as a memorandum at the office. We refer to the owner's list, and the next day a salesman calls upon this car owner and tells him the merits of our particular tire. We have found it a fine business-getting plan.—Clarke G. Powell, Powell Supply Co., Omaha.

Demonstrate Accessories

To sell an accessory of the specialty class, go right out to a prospect's car and show him right there what it will do for his own machine.—E. E. Turner, Fearless Carbon Remover, Denver.

Sells for the Future

I tumbled some time ago to the fact that what I wanted was customers rather than immediate sales. When a man gets into my store, I try harder to make a friend of him than to get some of his money.—B. B. Weldon, distributer Oildag and Gredag, Kansas City.

(*Continued on page* 57)

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Extra Shekels

The Farm Lighting System

Hundreds of Prospects with Money to Buy, Little Added Overhead for the Dealer, No Service, a Clean Business and a Good Profit

THE Distributer, who sold cars and accessories at wholesale to a long list of dealers in a prosperous area drove up in front of the Dealer's salesroom with a trailer hitched on behind the Distributer's car.

"Come out and look at this thing," called the Distributer, as he drew off the canvas cover and disclosed to view a compact farm lighting system, reposing in the little two-wheeled vehicle.

The Dealer came and looked.

"You see," said the Distributer, "I've taken on the distributing agency for this system. I figure we can sell a lot of them in this territory. There ought to be a big sale for them and I think it will be a fine source of profit to you.

Keep the Volume Up

"You've been howling at me for more cars, more cars, and I haven't been able to get them for you for the very good reason that I can't get them from the factory. The factory can't give us as many this year as it did last year. We've got to keep our volume up some way and get some more legs under our businesses, you and I, so I've grabbed the agency for this lighting system.

"It will help keep the volume up NOW and later on will give us a greater volume than we ever could have if we stuck to cars alone."

"Why should I bother with this thing?" asked the Dealer. "It isn't connected with cars. It ——"

"It runs by gasoline, doesn't it?" asserted the Distributer.

"Yes."

"Well, I figure you should be making yourself headquarters here for everything that runs by gasoline—and this is just one of the things you ought to be selling.

"Your town is surrounded by farmers, all of whom are making money these days. They have dollars now where they didn't have cents a few years ago. Furthermore, they are getting wise to the comforts of life, and they want these systems."

"How do you know they do?" asked the sceptical Dealer.

"Because I went out and sold a few myself," retorted the Distributer. "I know they want them.

"All you've got to do is rig one of these things up in a trailer like this and fly at it. You can sell a lot of 'em. You hitch this trailer on behind your car and drive out to some farmer's home. If you can make such a trip late in the day when the farmer has more time to talk and is in the house you can give him an evening demonstration that will knock his eyes out.

"You drive into his yard, go to the door, introduce yourself, talk a while, eye up the house, pick out a good place to hang this cluster of lights on this wire, and then ask him to wait a minute until you bring the light in. He may think you are going to bring the whole thing into the house, but what you do is go out, get this cluster of three lights on this extension wire, carry it into the house, and just as you get it hung up snap the button. It will make his house lights look sick. That first snap of the switch is one of your biggest sales arguments.

An Easy Seller

"As you talk you mention the convenience of the thing, the saving on eyes, the better air, the better health, and then you screw an extra lead into one of the sockets and say: 'You could have a lamp here to good advantage,' and as you say it you take the lead to the kitchen or the pantry or the stairway or some other dark spot. As you are leaving you show how a porch light would illuminate.

"Leaving the lights burning in the house you take the farmer outside and show him how small the device is, how easy it is to install and operate and how little it costs. All he has to do is give the engine a turn every morning and go away and leave it. When the batteries are full it stops, and those batteries will run him electrically for more than one day. It takes only a little kerosene a day, less than a gallon, to keep the system charged.

"You have with you an electric iron, a toaster, a percolator and some other things. Show them how these operate. If necessary, fill the percolator with coffee for breakfast, leave it on the table, leave the toaster handy, leave the iron and the other fixtures, and finally say: 'I won't need this until to-morrow and I've got to make a run up the road. I'll just leave this thing here and get it in the morning.' With that you go away and leave the system there to sell itself. When you call the next day the farmer's wife will be your best salesman.

> No man who has ever seen one or who has had electric lights in his house for five minutes ever wants anything but electric lights. The thing is easy to sell.

"After you sell this all the farmer has to do is put down a concrete base in a small building and put in as much wiring as he wants. You can get an electrical man to do this or can have an electrician in your own employ. You ought to have a good electrical man anyway. This is a good excuse for hiring one.

"In case the evening is cool and the farmer couldn't have the window or door open a crack to let the wire in you could make a little board with a notch in it that you could slip under a window and let the wire through. I've used that. The board

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is in two pieces and slides like a telescope so it fits any window.

"I don't see how any farmer can help buying one of these things if you give him a good demonstration. I've found them easy to sell."

"Maybe," said the Dealer, who still seemed far from sold on the idea.

"Maybe!" almost shouted the Distributer. "Say!

"And it is a clean business. There is nothing to trade. When you sell a car you have to trade four times out of five. With this thing it is a clean money deal. You don't have to give any service. There aren't any repairs. There's no kick or come back. The man can't drive the thing

> This is a better business proposition than your cars. There is nothing to trade. It is a clean money deal. You don't have to give any service.

up to your door whenever he wants to and bull you into giving him something for nothing.

"And, do you know, I've found quite a few of the newer farmhouses all wired and just waiting for electricity. The farmer knew electricity would come some day, so when he built the house he had it wired. Wiring costs more now than it did then and installing the wires when the house was built is a better and cheaper job than installation after the house is completed.

"And here's another sales idea you can use. Some night when the Grange is to meet at a farmer's house get his permission to light the house for him for that evening. The Grange might even give you permission to talk a few minutes on what electricity means to the farmer. Don't make too long a speech, and leave some literature and return postal cards lying around.

"You should mention all the things this system can do. It will run milking machines, washers, churns, cream separators, flat-irons, toasters, percolators, heaters and a raft of things.

"And here is a big sales point.

"What doesn't electricity mean to the farmer in his barns? He can have light everywhere cheaply instead of having to cart a dangerous lantern around all the time. It's great!" The Distributer enthused to the top degree.

"But what's it going to cost me to go into this thing?" the Dealer WANTED TO KNOW.

"Almost nothing," said the Distributer. "You need a demonstrating outfit such as this. You buy a trailer and fasten the thing in. The whole outfit won't cost more than a thousand dollars. In addition, you ought to have one in your place of business so you can demonstrate to people who come in. But with it you can run your own lights to a large extent and effect a saving in your own lighting bills. I should say you could get two outfits, one for the salesroom and one for the trailer, for not to exceed eight or ten hundred dollars, and one of them will work for you at the same time that it sells for you."

"But how about the farmer installing the thing after he gets it?"

Hire an Electrician

"Easy. It's a job for an electrician. You can hire an electrician and do the job yourself or you can turn it over to some small electrical contractor. In the latter case you will have this contractor boosting for you, because he knows that every time you make a sale it means work for him.

"Also, unless you want to go into the electrical home devices business, it means business for him if he is on the job. He is the man who to-day should be selling all these toasters and percolators and other things, and one by one he can slip them into the farmer's home at a profit to himself—if he is on the job."

The Distributer was getting more enthusiastic every minute. The dream of the electrified farm unfolded itself in his imagination. But somehow or other the Dealer didn't get the fever. He asked, once more:

"But do you think I ought to take on this thing? You know, I'm an automobile dealer. I'm not a farm lighting dealer."

"No," retorted the Distributer, "and you never will be unless you get some of this fog out of the back of your head and wake up and hear the birds sing. Can't you dream a little and see where you and I and all the rest of us are headed for? We have sold motor cars and made some money. We can continue selling cars and make a little money, but we never shall be able to make the money we all dream about unless we get out of old ways and into new.

"Your business as an automobile dealer is limited. Your business as a garageman is limited. You can go only so far with trucks and tractors and everything else you sell. The only way you can get a real volume of

> If a farmer were to run all this machinery on lighting company current it would make a big electric bill, but when he makes his own electricity it comes very cheap.

business is to expand your business to the point where it is a complete automotive establishment. You must be the headquarters for all things that are founded on gasoline. When any one in this territory thinks of gasoline they must think of you.

"This lighting system is just one more of the legs that you must put under your business. You must have several avenues of income. Then, when one of the legs gets weak your whole business won't go down. To-day the car business is off. We all know it. Why kid ourselves on the subject. It's off. If we had automotive business with several legs under the business the slump in one leg won't be felt so much. Right now farmers will buy farm lighting systems. When you can't get cars you can use your time selling these. And in the winter when your car sales are off anyway you could be demonstrating these things on a sleigh.

"They are extra shekels. They are money found. They will take some of your unused time and turn it into real money. They put another leg under your business.

"But—you've got to become a figuring business man, realizing the value of time and merchandise, analyzing costs at every turn and taking advantage of every chance to add a dollar to your profits."

"Well," said the Dealer with a drawl and a smile, "if I can talk about this thing the way you have I KNOW I can sell 'em. I'll take it on."

> You've got to become a figuring business man, realizing the value of time and merchandise, analyzing costs at every turn and taking advantage of every chance to add a dollar to your profits. These systems are extra shekels—money found — unused time turned into cash.

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Ways to Save—Add to Your Profits

(*Continued from page* 37)

repair and accessory departments. Kicks are less frequent when bills are rendered promptly.—Arthur Stanley Zell, president of the Zell Motor Car Co., Baltimore, Peerless and Chalmers distributer.

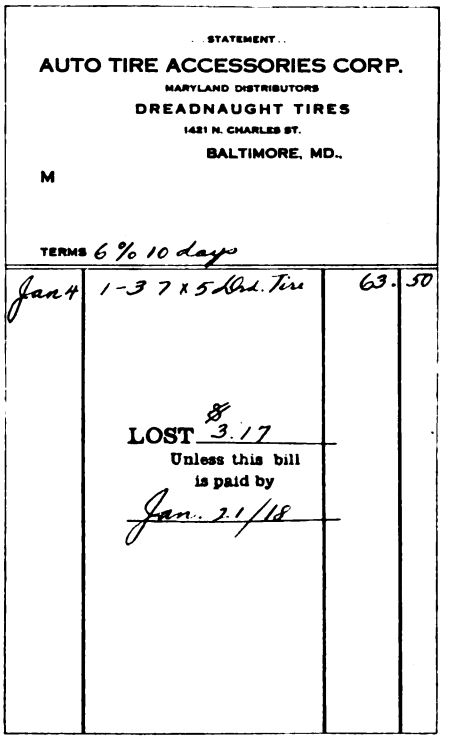
Get an Expert Accountant

I advise every dealer to get an expert accountant to come into his place and see where the leaks are. We did it and while our place is on a high plane we found it paid for itself.—R. Milton Norris, sales manager, Standard Motor Co., Cadillac distributer, Baltimore.

Rubber Stamp Good Collector

An investment of 75 cents proved to be a real money collector and brought prompt payments of bills, according to a plan worked out by Oscar S. Duerr, manager of the Auto Tire Accessories Co., Maryland distributer for the Dreadnaught Tire & Rubber Co. This investment was the cost of making a rubber stamp and has been in use since last year, so that it has had a good tryout.

The rubber stamp prints as shown on the invoice here. This is how it operates: If a tire 37 x 5 is purchased on Jan. 11, for $63.50 at terms of 5 per cent 10 days the discount would be $3.17. This amount is set out in the dotted line as shown.



STATEMENT

AUTO TIRE ACCESSORIES CORP.
MARYLAND DISTRIBUTORS
DREADNAUGHT TIRES
1421 N. CHARLES ST.
BALTIMORE, MD.

M

TERMS 6% 10 days

Jan 4	1-37x5 Dd. Tire	63.	50

LOST 3.17
Unless this bill is paid by
Jan. 21/18

The little "Lost" mark on the bill brought in some slow accounts

When it first appeared on bills customers began to call up for explanation, laughed heartily, took the cue and sent in remittances promptly. Customers who were poor payers have now become among the best on the books, and bills that always remained unpaid for three or four months are now paid on schedule.

Wastes We Overlook

Should a salesman use a car whenever he goes down town to lunch?

That question came up during the Chicago motor show when a number of men, dealers, branch managers and factory officials were having a little session at the Congress. A former Bostonian, now with a Western factory, started it going, and he made some apt remarks.

"Why should a salesman use up my gasoline and tires every time he goes to lunch?" he asked. "When I was in business in Boston and I went down town, unless I wanted to show a man our car I took a street car. And so did my salesmen.

"Any one of the six business days of the week you can go down by some of the popular restaurants and hotels in Boston and see a lot of dealers cars outside. And in the early evening some of the cars are there, too. One restaurant, noted the country over for its attractive girls—not the kind that flirt and go joy-riding, for they would lose their positions if they did—is the mecca for salesmen. They like to let the girls see that they have a car to drive.

"Aside from that you will find that what is true of Boston is true of other places. There is no reason why a salesman should use up gasoline and the wear and tear of tires, which though small daily mounts up in the aggregate to a big sum. The dealer who has six or eight or more salesmen would find if he checked up a bit that he could save quite a few dollars every year by telling the men to use the street cars. And it is not unusual in some cities to see dealers' cars out on shopping tours on Saturday evenings when they should be in the service stations."

Some of the men present agreed that they never had given this matter any consideration. It was one of those things that drifted in with the usual run of things, a heritage from the old days when a bird, a bottle and a good story sold the car. Now with business methods in vogue there seems to be one little leak that can be plugged up. The salesman would not stay away any longer for luncheon, for he could have a time limit, and it might make him realize the value of time. Also it would furnish him with comparative ideas on the talking point of the value of a motor car through knowing how necessary it is when you are without it.

Ideas That Will Help Sell Trucks

(*Continued from page* 35)

Then make up a live list of prospects from these trades and show how the truck has entered into the success of this or that man's business.—A. H. Geesey, Anderson Motor Co., York, Pa.

Harsh Methods Won

Indifference to a prospect made a sale for me. I had remained over in a town to sell a truck. When I went back to see him the next morning he said he had closed. I told him what I thought of him for keeping me overnight and then buying without giving me a chance. I said good-by. He tried to call me back, but I told him my time was as valuable as his and, since he had bought, it was useless for me to remain and discuss my proposition. He began to insist, and I told him my office was open to him when he desired to call. Two days later he came and said he had not closed and wanted to hear what I had. He bought in about an hour.—Lyman Bryan, truck sales manager, Packard Motor Car Co., Baltimore.

His Competitors' Knocks Helped

I made a deal by telling a hard prospect who would not listen to my sales talk all the knocks my competitors were using. When I admitted some of the points that had been made against my proposition and showed him the points that counteracted the other talks, he became anxious to know who told me of the knocks. But I got around that by saying if he hadn't heard them he would. He bought.—Lyman Bryan, truck sales manager, Packard Motor Car Co., Baltimore.

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Why We Like Our Star Dealer

Things the Factory Likes in the Dealer

1—That a dealer be a MERCHANT from the ground up.
2—An A-1 place of business.
3—Good display of the cars.
4—Thoroughgoing prospect files.
5—Intensive Sales work.
6—Real accounting methods.
7—Firm relations with the banks.
8—No price-cutting.
9—Sane used-car methods.
10—Good standing in the community.
11—Good advertising.
12—Co-operation with the factory.
13—Conservative ordering of cars.
14—Payment of sight drafts.
15—Good service department.
16—Attention to owners' complaints.
17—Prompt answers to factory letters.
18—Furnishing of such data as the factory requests.
19—Gentlemanly treatment of factory officials.
20—Visits to the factory once in a while.
21—Good financial backing.
22—Sells cars every month of the year.
23—Has confidence in the factory.
24—Has confidence in the cars.
25—Doesn't worry about occasional defects.
26—Develops his territory.
27—Spends own money in sales promotion.
28—Doesn't keep flirting with other lines of cars.
29—Gives advice and doesn't get sore when it is not taken.
30—Not subject to panic.
31—Tries to solve own problems before wailing to the factory.
32—Stands on his own feet and doesn't lean on the factory.
33—Doesn't kick all the time.
34—Plays fair. Not always trying to put something over.
35—Proper policies.

The Factory Side of the Dealer Question

WHY THIS STORY IS PRINTED

SOMETIMES the dealer cusses the factory.

And we presume the factory sometimes cusses the dealer.

The dealer's side of the question is well known to the dealer. He knows it better than anyone else. But as this Summer Merchandising Number of Motor World was being prepared it occurred to us that maybe the factory had a few arguments with which the rest of us are not familiar.

So Motor World asked some of the principal factories if they didn't have a "star" dealer, and, if so, why the factory liked him. The answers are interesting.

Read them over carefully. Maybe, after you do that, some of the grievances you have had against the factory may be seen in a different light—and maybe not.

But, anyway, here's a place where the factory man gets a chance to air his opinions on the subject of dealers and how they act, and it's mighty interesting reading.

The stories of the factory men begin on the following page.

PERHAPS there is some factory executive, or road man, or some dealer, or branch man who would like to add a thought to the interesting ideas on these pages. If so, send them along.

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HE IS A GOOD MERCHANT

Editor Motor World: "Why we like our Star Dealer" certainly has possibilities and if you get the replies to your letter that you are looking for, your article in the annual Summer Merchandising Number ought to be a "Stem-winder."

We must consider our star dealer as three dealers, because there are three who seem to be just about on a par. You can make a composition of the three if you like, but do not mention any of their names.

To begin with, all three of them are merchants from the ground up. They are men who undoubtedly would make an equal success selling any line of merchandise.

Their places of business are A-1. Each of them appreciates the value of a central location, and understands just how much the right kind of display means in selling automobiles. Each of these dealers has from time to time installed special displays in their big show room windows, the ——— dealer, perhaps, going a little farther than the other two, but this we expected from the fact that brilliant displays and publicity of all kinds are a greater factor in any line of business in ——— than in almost any other state.

More than once our ——— dealer has had window displays involving the use of living figures.

All three of these dealers understand the value of a thoroughgoing prospect file. We know each of them operates prospect files. We have had samples of the cards and forms which they use. We know that they utilize every possible means for obtaining prospects such as club and fraternal membership lists, the record of estates and wills filed in the Probate Court, etc.

Of the three, our———dealer probably has the most infallible and effective system of gathering and following his prospects.

They all place great importance in their accounting systems and I am sure that any one of them could give you an accurate statement of the business at the close of each day.

They have each built up an enviable credit with the banking institutions of their city, and in one of these cases I know that the bankers will tell you that our dealers' credit is unlimited. With that sort of a reputation for doing business on a solid basis it is not hard to see why they succeed.

Not one of these three men will resort to "circus" methods, such as price-cutting, prize contests, etc. Each man in the sales end of our ——— dealer's organization, as well as the head of his service department, shop, etc., has an interest in the business and receives a share of the profits.

Our ——— dealer is a specialist in used cars; in fact, before he became a ——— dealer he was for several years an exclusive used-car dealer in ——— and by following methods similar to those which made him successful as a used-car merchant he now finds that the used-car problem is really not a problem at all.

Each of these three dealers personally is a man who is held in the highest regard in his community and through the place which each holds each has built up a clientele of ——— owners numbering many of the most desirable car owners in the community.

Our ——— dealer through his great interest in ——— good roads has become head of the ——— Good Roads Association. He was also one of the directors of ——— Exposition.

Last, but not least, these three dealers believe in advertising and there is scarcely a week goes by that you do not see their names and that of ——— before the public through the columns of their local papers.

Our ——— dealer, living in a state which thrives to a considerable extent on publicity and advertising, has left nothing undone to put his name and that of ——— before the ——— public.

For four consecutive years his ——— car has been the first car into the mountains, and this feat has always resulted in column after column of excellent publicity, illustrated by numerous photographs.

There is really very little to be desired to make a star dealer that these three dealers do not do.—MANUFACTURER.

HE COOPERATES WITH US

Editor Motor World: The ideal dealer is the one who cooperates most closely with the factory, irrespective of the number of cars he may sell.

Cooperation is a much overworked word, but it is the oil which keeps the wheels of commercial machinery running smoothly.

The ideal dealer does many things:

He orders cars conservatively and pays for them when they arrive. Nothing gets a dealer in bad quicker than unpaid sight drafts.

He has a service organization, and particularly a service manager who is diplomat enough to prevent the owners from worrying the factory with their small or great tribulations. Letters from owners, complaining about the service given by a dealer will get him in bad very quickly.

The ideal dealer will answer correspondence very promptly and he will be especially particular in furnishing the factory with all the statistics which it requests. Many dealers think that these constant requests for information regarding cars on hand and orders on hand, et cetera, are a nuisance, but without a comprehensive idea of the car situation no sales manager can handle his job to his own satisfaction, and if a dealer gets in the sales manager's way he has only himself to blame if the inevitable happens.

The ideal dealer, when he wants anything from the factory, goes after it diplomatically. He does not write a wordy tirade, condemning the whole product, criticising the engineers and questioning the business ethics of the company.

Instead, he comes to the factory himself and has a little quiet talk with the sales or service manager, and if he is reasonable he gets what he wants.

Condensed, I would say that the ideal dealer pays his sight drafts promptly, operates an efficient service department, furnishes information that the factory requests and comes to the factory to discuss his problems and to make good his claims.—MANUFACTURER.

HE IS FINANCIALLY BACKED

Editor Motor World: I take it that you do not want a literary composition on what an ideal dealer should be. I am taking it for granted that you want simply an outline of the ideal qualities which we find in our best dealer.

These good qualities, which we find in our best dealer, I understand are going to be combined in a sort of symposium or composite picture, the materials for which have been drawn from a lot of sources.

Here then are qualities which we actually find in the dealer whom we consider the best on our list of ap-

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proximately one thousand dealers.

I am not going to mention his name nor his location, because I have a painful recollection of a company who did this same thing once with an office employee as the subject—that office employee was never the same afterward.

Our best distributer has financial backing sufficient to permit him to cooperate with us by taking cars in quantities when we are able to ship to him in quantities.

Sells cars to the limit of his quota every month of the year.

Has the confidence in us that enables him to take our word regarding conditions.

Has confidence in our line so that he is undismayed by the casual defect that shows up in individual cars.

Develops his territory by appointing dealers just as we would develop it were we doing it ourselves.

Advertises to the fullest extent which his territory permits.

Is not afraid to spend his own money in pushing sales even when the factory policy prevents our assisting him. Realizes that it is from our line and through our connection that he has made money.

Does not continually keep himself and us in hot water by flirting with other lines.

Is not afraid to give us advice and does not get annoyed when we do not take it.

Views business conditions in his territory on a liberal basis.

Is not ultra-conservative and subject to panic.

Maintains service facilities without our continual pressure that gives owners satisfaction.

Tries his best to solve hard problems that arise in his territory before running to the factory with a tale of woe.

Doesn't "lean" on the factory all of the time expecting us to lift and push him over every difficulty.

Doesn't kick about minor details to every factory representative that darkens his door.

Isn't all the time trying to get something for nothing—in other words he is a dealer you don't have to watch for fear he is trying to put something over.—MANUFACTURER.

HE HAS A GOOD ESTABLISHMENT

Editor Motor World: We feel that this is a subject which you can handle as well as we. Painting a picture of an *ideal dealer* in the automobile business is no different from portraying the ideal merchant in any other line of business.

We figure that the right kind of automobile merchant must have sufficient capital, must have a proper establishment, a keen, competent organization, proper policies, effective sales plans and methods, including methods of getting prospects, reporting them, displaying cars both new and used, and closing sales. In our business we also emphasize the vast importance of an excellent service station.

We demand that our dealers adhere to certain established principles which we know make for success in the long run. I can give you no better picture of this than to quote, herewith, an excerpt from an address made at a dealers' convention by our former president.

This speech was delivered September 3rd, 19—. It expressed the basic thought of the ——— organization *then;* it applies with equal force NOW.

Loyalty to this principle has produced the ——— reputation, which after all is merely accumulated goodwill. ——— reputation sold ten million dollars worth of ——— cars before the first model was delivered to a customer. The address follows:

"What makes a business successful?

"It is conducting the affairs of the company along the lines of straightforward business principles, which will win for the company the good-will of its patrons.

"We could not buy the good-will of our customers. It would not stay bought.

"If we do not deserve good-will by reason of the quality of our goods, by the methods under which they are sold, by the service our organization renders, that good-will upon which the company's success depends will slip through our fingers.

"If it be established that we are right, fair, equitable and sound in our principles, we shall get the good-will ultimately, and then it will belong to us. It will be ours by right of having won it fairly—by right of deserving it.

"We would rather have this company right than have it a greater financial success. We consider that the greatest success we can make is to have it said of us that *we are right.*"

We believe that if our dealers keep eternally busy doing the things they ought to do they will naturally avoid the things they ought not to do.

Probably the one thing that most quickly classifies a dealer as unfit is the tendency toward price cutting. Only a weak dealer cuts prices; a strong dealer, relying upon his honest methods, builds for the future, and has no fear that a price-cutting competitor will outlive him.

He realizes that the best interests of his customers demand that he shall treat them all fairly and that he shall take his proper profit, by so doing putting himself in a position to maintain a more efficient establishment for the benefit of his customers.

He knows that the reputation for square dealing will bring new customers to his establishment.

Therefore, he attends to his knitting, selling cars on the right basis—confident that he will survive.—MANUFACTURER.

HE DOESN'T QUIBBLE

Our "star" follows the Golden Rule between the manufacturer and purchaser. He always represents the car. The confidence of the purchaser is inspired naturally—automatically.

Motor World's suggestion met with favor here and immediately the heads of the various departments cast their votes. A star dealer could scarcely be picked any other way. A dealer might make heavy and consistent sales and at the same time be lax in his advertising or parts accounts, or fail to observe territorial restrictions properly.

He might take cars as fast as they are allotted to him, pay cash for them, sell them and make lots of money and yet not satisfactorily represent the manufacturer. His sales success might be temporary only, due to misrepresentation of the car or possibly his failure to provide faithful service due every purchaser.

Why do we like our star dealer? A few reasons given with the votes are as follows:

He sells lots of cars, he pays the price and takes them without quibbling.

He advertises consistently.

He renders courteous service to owners, new and old.

He deals fairly with competition; he is popular—a true gentleman automobile merchant.

He observes territorial restrictions, and if he has an opportunity to make a sale outside of his territory, he does it satisfactorily to the other dealer.—MANUFACTURER.

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These Ideas Will Sell Accessories

(*Continued from page* 50)

Push One Line Hard

Whenever I want to introduce a new specialty, I invariably present its features to everybody who comes into the store, especially the new customers. This is done in a casual, incidental way—and I always try to find out when they will be interested if not now. Ordinarily, I will push one thing this way for a few months or until I have something else new that I want to introduce.—B. B. Weldon, distributor Oildag and Gredag, Kansas City.

Keeps Date

I have sold a lot of specialties by keeping careful card index record of the dates that the customer is likely to want them. If a customer is not interested in a commodity I call his attention to it. I find out when he is likely to be and on the date he gives—I try to make him give a date—I call him up. Customers are always impressed with this attention, and in the large majority of cases will give an order or will say that on the next specific date they will order. This practice has resulted in a lot of sales and in the making of a great many regular customers.—B. B. Weldon, Kansas City.

Two Gasoline Pumps

One dealer located on a main street at the intersection of a side street has found big profit in gasoline sales by the installation of two gas pumps, one on each side of his garage. Sales have more than doubled.

Clean Up for Spring

Spring is here and all nature is at her best. Brighten up the shop, garage and store. Spring house cleaning is quite as much needed in a garage and accessory store as any other place.—A. H. Geesey, Anderson Motor Co., York, Pa.

Use a Window Display

A simple window display consisting of one or two lines of goods, together with a few neat sales cards, is most effective.—William Ilgenfritz, York Garage & Supply Co., York, Pa.

Sell Accessories to Prospects

Get ready for your big summer drive now by putting in a complete stock of accessories for the cars you handle.—J. W. Richley Auto Co., York, Pa.

Use White Overalls

An investment in white overalls for shopmen has actually speeded up work and increased efficiency, besides making the shop and service department pleasanter for such customers as get into them.—L. C. Hinkle, Premier Sales Co., Kansas City.

One Way to Sell Accessories

The Pella Motor Co., Pella, Iowa, has found that the way to sell accessories is to stock them. Formerly this concern had a stock of a few hundred dollars. Early in 1917 they decided to go in on a bigger scale. A $1,500 stock was bought, which is considerably heavier than the ordinary dealer in an Iowa town of 3000 people carries. The end of the year showed that the accessory business had netted $548 profit, 40 per cent.

Sells Accessories at Homes

The best accessory sales puller which the Sweeney Motor Car Co., Carroll, Iowa, ever tried was to put a salesman out with a car and make a house to house campaign among the farmers. He calls on his customers just as a traveling man "makes" his city customers. He collects the money and the accessories go out by parcel post the following day.

Harness Men Can Sell Tires

A harness dealer makes a splendid tire dealer. The names on his old accounts are a fine mailing list for letters seeking trade, which we supply. His former horse drivers are now running cars, and he knows how to resist bad competition, stand for honest goods and service, which not all garagemen have learned.—John R. Shuford, Bittel-Leftwich Co., St. Louis.

Good Kitchen Argument

If a man who is using cheap oil hesitates to buy a high grade oil after I have told him as convincingly as possible of its advantages and economy, I often say to him, "How many times have you recommended to your wife that the best flavoring extracts are the cheapest in the long run?"—Charles Krause, Field-Lippman Auto Supplies, St. Louis.

Know the Sales Story

We tell our starter dealers that the best way to sell starters is to make the first customer an enthusiast by telling him honestly, plainly and thoroughly what his starter will do and getting from him the names of his friends who need starters.—John R. Shuford, Bittel-Leftwich Co., St. Louis.

Forget the Price-Cutter

The only way to meet cut-throat and cut-price competition in accessory and service business is to sell only reliable goods and give honest service and charge honest, profitable prices, regardless of the other fellow.—B. O. Leftwich, Bittel-Leftwich Co., St. Louis.

Use Fine-tooth Comb

We wanted Ford car owners to become customers of our shop. We took a city map and marked off our rightful territory, half way to the nearest Ford station in every direction. Then we set a red pin for our customers and white ones for other Ford owners. When we got through changing white pins for red ones, or learning by interview why we could not, the shop was profitable.—W. L. Johnson, Johnson Automobile Co., St. Louis.

How Successful Men Sell Cars

(*Continued from page* 28)

Gets Real Figures

Herbert D. Ellinwood, salesman with the Butler Motor Co., Kansas City, selling the Dodge, has for several months been selling wholly with figures. He gets the upkeep and depreciation figures from firms which are using many Dodge cars and the figures from those who are using other cars; when necessary the element of efficiency of salesmen when traveling in the Dodge is emphasized.

Steal Ideas

"The best idea I ever had was the notion to get the other fellow's idea," says L. A. Buxton, retail manager of the Buxton-Phillips Motors Corp., Kansas City. Any number of sales by members of the retail sales force of Chalmers and Maxwell are directly traceable to suggestions of fellow salesmen on problems presented at the daily and weekly meetings. The men of this organization are thoroughly imbued with this policy of getting all the help they can on their business.

Keep Posted

L. A. Buxton, retail manager of Buxton-Phillips Motors Corp., Chalmers and Maxwell, Kansas City, believes familiarity with local affairs and general information important to salesmen. For instance, progress of plans for erecting the 22-story building for the Kansas City Athletic Club should be familiar to a salesman, since members of the athletic club are particularly good prospects for sales and they are all glad to talk about the club.

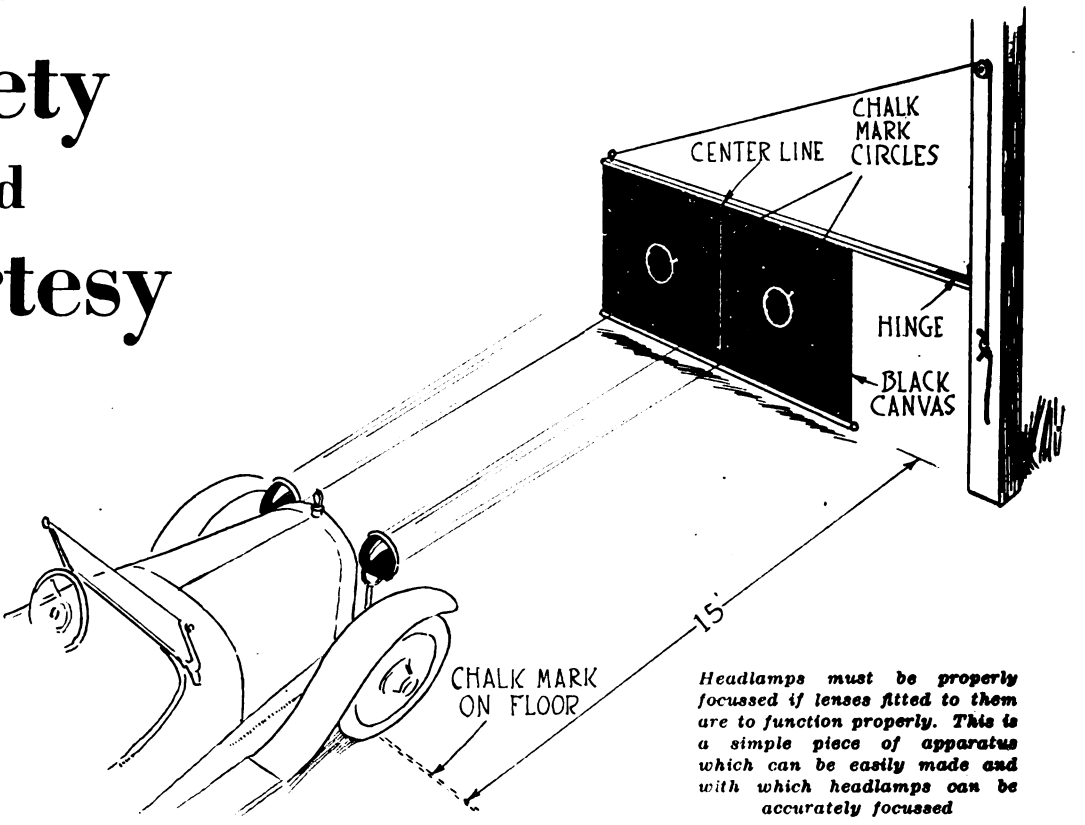
Cars for Drummers

One of the most successful Kansas City salesmen has drifted into selling his moderate-priced car for use of salesmen in large organizations. He goes after the sales managers of these firms—but is careful to interest the salesmen who would use the cars so that there might be pressure on the sales manager from this direction also.

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For

Safety and Courtesy



Headlamps must be properly focussed if lenses fitted to them are to function properly. This is a simple piece of apparatus which can be easily made and with which headlamps can be accurately focussed

Headlamps Must Be Properly Adjusted

IF you were standing in the doorway of your garage some fine evening this spring; and if you saw a car coming down the road in a blaze of glory—such a blaze, in fact, that you couldn't see the car or who was in it; and if after the car came abreast you recognized one of your best customers, would you let him go his way or would you 'phone him the next morning and tell him something like this:

"Good morning, Mr. Jones. I noticed your car passing my garage last night and I wondered if you would care to have me look over your headlamps for you. I am afraid that if they are not adjusted you may get into trouble with some of the local constables because of the headlamp glare law.

Help the Car Owner

"I'll be glad to look your lamps over and adjust them so that you won't have any trouble, even if you do drive out of the state. Charge? Oh, no, certainly not. Glad to help you out."

Or, would you let Mr. Jones go his way, dangerous to others blinded by his lamps, and dangerous to himself because of already widespread and spreading anti-glare laws.

Courtesy to others using the road and safety for Mr. Jones as well as for others demand that you help him. And in helping him you will help yourself. You will gain his goodwill—and very likely will sell him a pair of lenses.

States Have Laws

At the present time there are 29 states which have headlamp laws. Sixteen of these specifically mention the 42-in. line and limiting the height to which direct beams can rise above the roadway. In other words, if headlamps are so adjusted that direct beams do not rise more than 42 in. above the roadway, no motorist need fear falling into the clutches of the law.

It is the duty of the dealer, garageman and repairman to assist the car owner in the adjustment of his lamps so that sufficient illumination is provided to make driving safe for the owner and safe for others and at the same time follow the intent of the various anti-glare laws.

The proper adjustment of headlamps is very simple and requires no equipment other than a black canvas screen 4 x 8 ft. with two white circles chalked on it.

If this screen is mounted so that its height may be varied a few inches, the chalk circles can be placed the same distance from the floor as the center of the headlamps.

If the car is then placed exactly at right angles to the screen and 15 ft. from it, the headlamps if properly adjusted and with plain lenses or none will show two clear circles of light without dark spots or rings.

If dark spots or rings appear the bulbs should be adjusted until the circles of light are perfectly clear.

The next operation is to bend the headlamp brackets so that the circles of light come directly over the chalked circles on the screen, the screen having been previously placed so that these circles come at exactly the height of the headlamps.

How to Bend Brackets

Next, brackets should be bent so that they toe in slightly in order to concentrate the light from the two lamps on the center of the road.

It is practically impossible to so adjust the headlamps with plain lenses that objects 150 or 200 ft. in front of the car are revealed and at the same time keep direct light beams below the 42-in. limit. If all the direct light beams are kept below this limit there will not be sufficient

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light projection. In other words, it is at this point in the adjustment that the dealer or garageman should suggest the advisability of equipping with lenses.

On the other hand, if the lamps are already equipped with lenses it may be that they are not functioning properly because the bulbs are out of focus. It is essential that the bulbs be properly focussed, as outlined previously, if the lenses are to perform their duty properly.

Elsewhere on these pages is given a letter that a dealer or garageman should send to all his customers now, outlining the need for having lamps properly focussed and equipped with lenses that fulfill the requirements of the law.

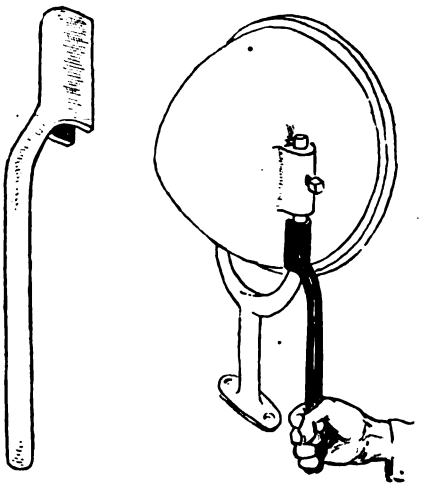
What Size Tractor?

(*Continued from page 41*)

the tractor is noticeable. A further significant fact concerning the tractor owners in classes one and two is that in class one, 42, or all but nine, are located in corn belt states, namely, Ohio, Indiana, Illinois, Wisconsin, Iowa, Nebraska and Kansas. Of those in class two, 66, or all but 14, are located in the same states.

The significance of this is obvious: the largest number of tractors have been sold, and will continue to be sold, in the corn belt states. The average size of the farms in those states are well below the 400-acre size. As indicated above, the popular sizes of tractor for farms below this limit are the 8-16, the 10-20 and the 12-25. These all are three-bottom tractors. *The inference for the dealer who would sell tractors in this territory is unavoidable. If his line comprises tractors of these ratings he can safely and satisfactorily meet the average condition of his trade and insure satisfactory results.*

Just two years ago the United States Department of Agriculture, in Bulletin 719, announced a tentative conclusion almost identical with that reached here, based upon the experience of 200 Illinois farmers, but at that time experience had not been extensive enough to warrant absolutely conclusive recommendations.



Tool for bending headlamp brackets so that the light beams can be directed straight ahead and slightly toward the road

Mr. Motorist:

If you saw Bill Jenkins coming down the road toward you some dark night with a pair of headlamps blazing like the torch of Glory, you'd be likely to cuss at him, wouldn't you?

May we examine your lamps for you so as to make sure that Bill has no reason for cussing at YOU?

If you will stop in any time, day or night, we shall be glad to examine your lamps, focus them properly and make dead certain, not only that Bill can't cuss you for glare, but that no constable in any state will hold you up.

It's a very simple operation—takes about five minutes, and we shall be glad to do it without charge for the good of the cause of courtesy and safety.

You owe it to yourself and to others to have your lamps right.

Come in to-day and let's do it.

For Safety and Courtesy,
Frank Smith,
THE BLANK GARAGE

Within the last year the Iowa State College conducted a survey among tractor owners in Iowa and reached identically the same conclusion. The inference then, deduced from the data studied in this article, and confirmed by authoritative investigations by others, may be relied upon by the dealer as a safe guide in selecting a tractor line, as regards rating, which will insure satisfaction among his customers and permanency and profit in the trade for himself.

Accessory Profits Beckon

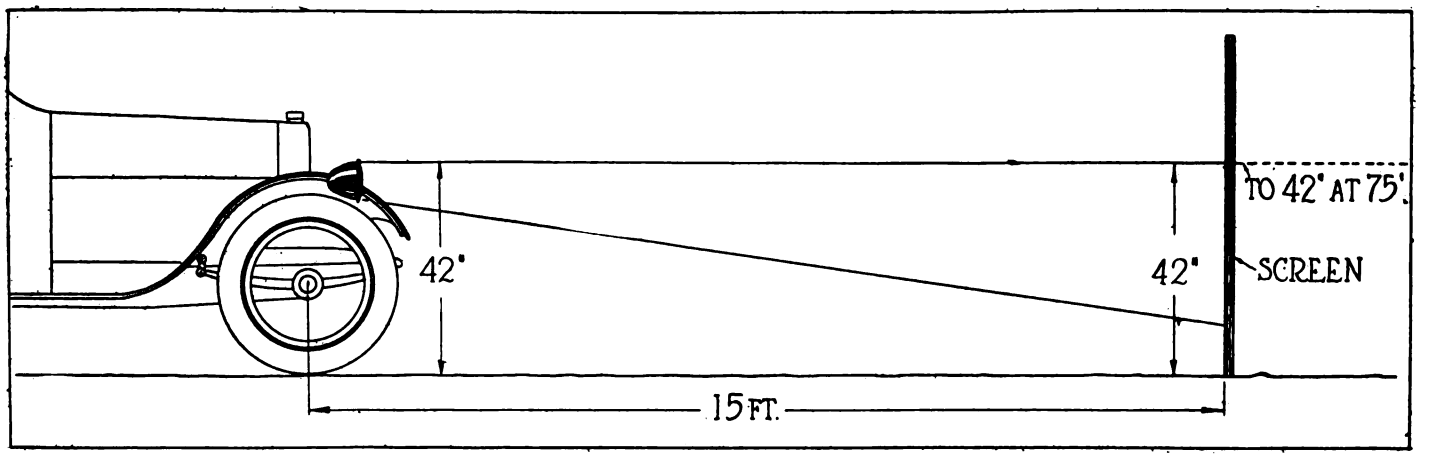
(*Continued from page 44*)

the result is increased costs and decreased volume, as, if it costs 20 per cent to do business one month, and the following month with the same personnel you reduce your volume by half, you will find the overhead is increased by half and your cost increased. I would repeat that volume can best be obtained by selling standard lines of accessories known to the average car owner through advertising and recommended by reputable jobbers.

I believe the profit on accessories compares very favorably with that on cars. I understand some cars are sold on 15 to 20 per cent, whereas you can get an average of 30 per cent on accessories and turn over the capital invested many more times. You could safely give considerable time and a portion of your working capital to handling accessories and earn a very respectable profit on the line.

Urge Better Roads

NEW YORK, April 20.—Resolutions calling upon the President and Congress to adopt some definite road-building policy and provide for some centralized control for the determination, construction and maintenance of highways throughout the United States, and for the use of prisoners of war in road construction work was unanimously adopted at the meeting of the Highway Traffic Assn. of the State of New York here April 16. The broad aspect of road construction in the United States was outlined by the speaker of the evening, S. M. Williams, President of the Highways Industries Assn., with headquarters in Washington, D. C.



When lamps are properly adjusted, the light rays should not rise above a mark 42 in. high at a distance 75 ft. in front of the car. If so adjusted, they will comply with practically every headlamp law

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Added Profits

For Your 1918 Summer Business

ACCESSORIES

CAR owners are in your place every day. They want accessories. Sell them to them. Every accessory you sell is that much added profit. The accessory business is going to get bigger and bigger and bigger and somebody's going to make a lot of money out of it in your town. Everything is in your favor. All you need is the stock and the store. Here are goods for your stock.

PANTHER TIE-ROD SILENCER

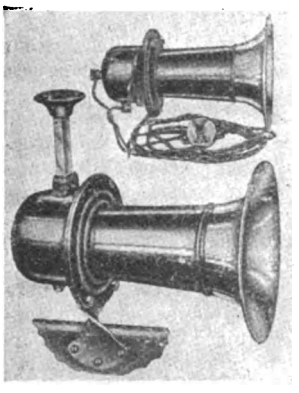
A phosphor bronze spring silencer for tie-rods on Chevrolet, Saxon, Ford, Scripps-Booth and other cars. One end of spring goes between eye and yoke and other end is held by nut on bolt. Price 25 cents per pair.—B. A. T. Co., Wayne Junction, Philadelphia.

G-P CUTOUT PEDAL

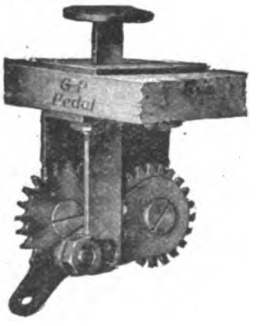
A cutout pedal made entirely of steel, the up and down motion of the pedal being changed to horizontal motion by means of gears with compound leverage. Needs but one round hole drilled in floor board. Price $1.50.—Edward A. Cassidy Co., Inc., Madison Avenue and 40th Street, New York City.

CARBORUNDUM VALVE GRINDING COMPOUND

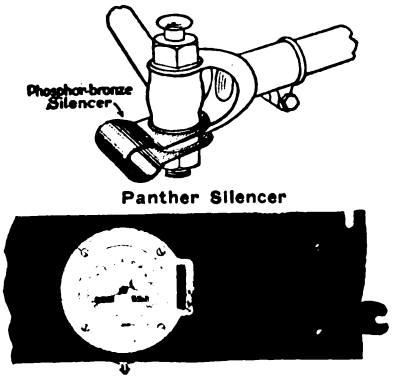
A valve grinding compound put up in combination can, each compartment containing 2 oz. of compound. Coarse compound is in one compartment and fine in the other. Price 50 cents. Also put in 1 and 5-lb. cans and in collapsible tubes.—Carborundum Co., Niagara Falls.



Clero Horns



G-P Pedal



Panther Silencer

Sears-Cross Instrument Board



Moats Portable Stove

MODEL A CLERO HORN

A hand-horn finished in black, black and brass or black and nickel. Horn is constructed with spiral drive mechanism. Length 9 in., weight 3 lb. Price $4.—Fitzgerald Mfg. Co., Torrington, Conn.

SEARS-CROSS INSTRUMENT-BOARD

Model FCN speedometer and cowl dash are intended for use on Fords. Speedometer is set flush in cowl and furnished with regular straight bronze drive or with swivel drive when car is equipped with shock absorbers. Dash can also be used for installation of other instruments. Speedometer finish is nickel and dash is covered with heavy imitation black leather, brackets on each end of board being made to fit firm in place under windshield frame. Price $12 with straight drive, $14 with swivel drive.—Sears-Cross Co., Bush Terminal, Brooklyn, N. Y.

ATTWOOD GREASE CABINET

A device to handle light and heavy oils and to measure grease directly into transmission or differential case through a 48 in. rubber hose with shut-off nipple. Price $8.50.—Fulton Sales Co., 910 South Michigan Avenue, Chicago.

FORD REAR CURTAIN LIGHTS

Celluloid curtain lights with center reinforcement attached with fasteners. Price $1.10 for 1910-16 cars, 45 cents for 1917 cars.—Powers Mfg Co., Waterloo, Iowa.

SHALEX RADIATOR CLEANER

A compound placed in the cooling system, dissolving in the water, to clean lime and rust from the inside of radiators and cooling systems. Screw top 14 ounce can 75 cents.—Northwestern Chemical Co., Marietta, Ohio.

MOATS FOLDING PORTABLE GASOLINE STOVE

A folding portable stove consisting of case, table and cooking and serving outfit for two, four or six people. No. 1 oven stove has three burners, two for frying or boiling and one for baking or roasting, includes equipment of two frying pans, baking pan, sugar and coffee container, funnel and pressure pump. Equipment, legs and ends of oven packed into base of stove. Price fully equipped $24, with pump and funnel only, $22.50. No. 2 stove has two 6 in. grates, coffee pot, two frying pans, sugar and coffee containers, pressure pump and funnel but no oven. Price fully equipped $13, with pump and funnel only $12. No. 3 stove is the same design as No. 2 but a little larger. Price fully equipped $14, with pump and funnel only $13. No. 4 is a one burner stove with pressure pump and funnel. Price $7.—Prentiss-Wabers Mfg. Co., Grand Rapids, Wis.

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RUSCO BRAKE LINING

Brake lining made from long fibre asbestos yarn, interwoven with brass wire. Both edges are selvedged with asbestos yarn twisted around the two brass wires. Impregnated with secret compound to give it long quality and make it water and oil proof.—Russell Mfg. Co., Middletown, Conn.

HERCULES SPRING BUMPER

A spring bumper made in sizes to fit any car, constructed entirely of steel, and can be attached without boring holes or defacing car where mud splashers are used in front. Bumper has double spring action, does not rattle and comes with black enamel or nickel finish. Price $15 for large size, $14 for medium size, $12 for Ford size. Prices are for nickel finish; black enamel $1 less.—Hercules Spring Bumper Co., 1777 Broadway, New York.

MACK AUTOMATIC OIL GAGE

An oil gage for Fords that automatically stops the engine by breaking the ignition circuit when the oil level gets below a certain point. The gage also shows the amount of oil in reservoir through a sight glass. Can be attached in a short time to any car without machine work. Price $7.50. Mack Safety Oil Gage Co., 14 State Street, Boston.

EASYON CHAINS

Chains to go around tire and snap around spoke. Four single chains serve each wheel, leather protectors for preserving spokes. Tread or cross piece is shaped to give wear and prevent injury to tire. Packed set of eight to the bag. Small size $4 for 3 or 3½ in. tires, medium size $5 for 4 or 4½ in. tires, large size for 5 or 5½ in. tires $6 per set.—Woodworth Mfg. Corp., Niagara Falls.

SUNDERMAN MANIFOLD FOR FORDS

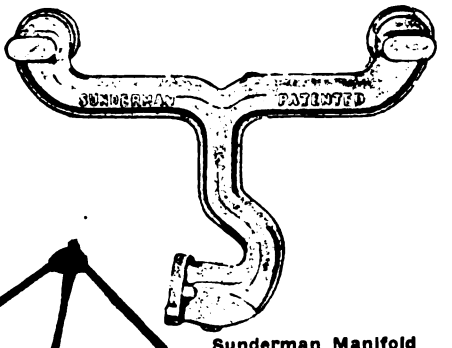
A special manifold with a pocket to vaporize condensed fuel in the manifold. Because of the bend a uniform vacuum is preserved and economy results, as a pocket near the joint holds the gasoline that condenses when the engine is shut off or throttled low. Can be used with all Ford carbureters. Price $2.50.—Sunderman Corp., Newburgh, N. Y.

TONGEMAN VULCANIZER

Consists of a modified pair of pliers, the jaws of which hold the fuel container and heater against the tube. Complete outfit consists of nickel-plated tongs, one large copper-heating pan, one small copper-heating pan, nine small patches, eighteen small vulcanizing fuses, three large gum patches, six large vulcanizing fuses, sandpaper and directions. Price $1.75.—Tongeman Vulcanizer Co., 626 Plymouth Building, Minneapolis.

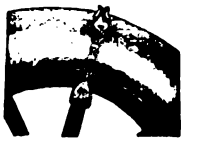
GOODRICH ENGINE TESTING VALVE

A modified type of cut-out, having bell mouth opening to allow for ample expansion of gases, relieve back pressure and intensify sound of explosion. Made in sizes to fit all cars; 1½ in., $3; 1⅝ to 3⅛ in., $3.75; 2⅛ to 3 in., $4.25.—Goodrich-Lenhart Mfg. Co., Widener Building, Philadelphia.

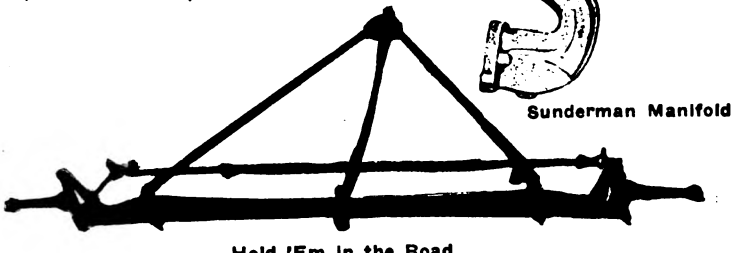


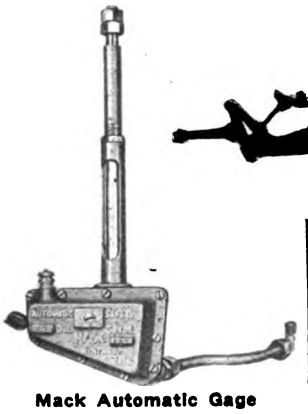
Sunderman Manifold

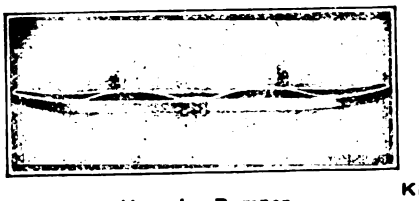

Goodrich Valve


Easyon Chain


Tongeman Vulcanizer


Hold 'Em in the Road


Mack Automatic Gage


Hercules Bumper


Klaxon Warning Signals


Cleveland Slip-On Body

HOLD 'EM IN THE ROAD

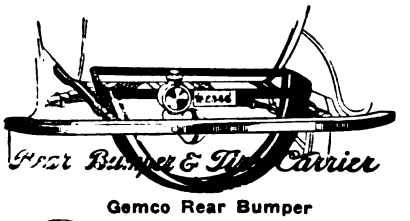
A combination radius rod brace, anti-rattler, axle support and steering device for Ford cars. An arm is clamped, one end on the front axle, the other near the ball socket, and two springs are coiled around the tie rod which goes through a hole in the arm. The springs act between the arm and the stops on the tie rod. Stiffens the front radius rod by acting as a third arm; the spring tension prevents the tie rod from rattling and also tends to keep the wheels straight.—Cooper Auto Supply Co., Thomasville, Ga.

GEMCO REAR BUMPER FOR FORD SEDAN

A spring bumper, made so as not to interfere with the channel bar supporting the car spring. Furnished in nickel or black finish and with round, diamond or channel bar. Packed five in a crate. Prices range from $10.24 to $13.80.—Gemco Mfg. Co., Milwaukee.

SANITARY RUNNING BOARD MAT

A wire mat attached to running-board without use of bolts or screws. Size 8½ x 18 x ⅞ in. Fits any make of car. Price $1.25.—Sanitary Wire Door Mat Co., 413 South Lincoln St., Chicago.


Gemco Rear Bumper


Cochran Speednut Wrench


Sanitary Runningboard Mat

UTILITY BLACK AIR-DRYING ENAMEL

A black air-drying enamel for metal parts. Dries in 1 hour to a gloss black finish. Half pints 60 cents, pints $1.—Northwestern Chemical Co., Marietta, Ohio.

SIMPLICITY DEMOUNTABLE WHEEL

Demountable wheels for Fords which go on regular Ford hubs. Simple, light and strong.—Simplicity Wheel Co., Grand Rapids, Mich.

CLEVELAND SLIP-ON BODY

A flare-board tail-gate body to be attached with a few bolts in place of the rear deck of the Ford runabout. Has hardwood frames, floorboards run lengthwise, well ironed and painted black. Is 54 in. long, 36 in. wide, 10 in. side panels and 5 in. flareboards. Weight 118 lbs. Price $7.20.—Cleveland Top & Specialty Co., 3102 Franklin Ave., Cleveland.

KLAXON WARNING SIGNALS

All Klaxon warning signals are of the motor driven type except the hand-operated model. The Klaxon 20 "L" lists at $25, the Klaxon 12 at $14, and the Klaxon 6 at $7. There are also two hand-operated models selling for $4 each. A Klaxon display board is furnished to dealers.—Klaxon Co., Newark, N. J.

COCHRAN SPEEDNUT WRENCH

A three-piece end wrench, the handle of which acts as a lever to tighten the jaws, thereby eliminating any screw or worm adjustment for different size nuts. Two sizes, 6 and 8-in., with either square or hexagon jaw.—Cochran Pipe Wrench Mfg. Co., Seventy-eighth Street and Woodlawn Avenue, Chicago.

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HART BELL CARBON REMOVER

A mechanical device whereby water from the cooling system is conveyed to the intake manifold and thence to the cylinders, where it converts the incandescent carbon into gases which are blown out of the exhaust. Made in either dash or under-the-hood type, selling at $6 and $5 respectively.—Hart-Bell Co., Inc., 1926 Broadway, New York.

TRIDENT CARBURETER FOR FORDS

A carbureter for Fords with fuel jet size calculated to engine needs and the only adjustment necessary is air supply. Mixing chamber is formed into a venturi tube and throttle opening is of oval section with beveled edges. Air adjustment is controlled by increasing or decreasing the compression of springs placed concentrically above the auxiliary air valve. Price $10.—L. V. Flechter & Co., 192-200 Jackson Ave., Long Island City.

RED HEAD DISPLAY CABINET

Made of steel lithographed in red and with an index on the front of the cabinet giving the size and model of the plug required for all the leading cars and engines. Cabinet is leased to dealers with an assortment of 50 or 100 Red Head spark plugs suited to the requirement of the trade.—Emil Grossman Mfg. Corp., Brooklyn, N. Y.

"X" RADIATOR LIQUID

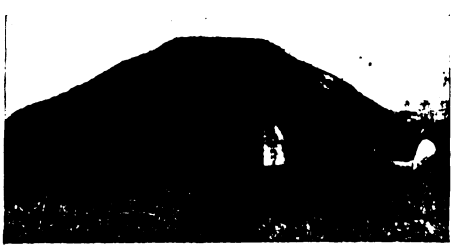
A liquid which is poured in the cooling system and circulated freely until it nnds a leak, when it hardens. Also loosens rust and scale and prevents formation of scale. Price $1.50 per can; Ford size 75 cents a can. A special assortment of 18 cans is offered the dealer, together with one $1.50 can free. Assortment includes selling helps. — "X" Laboratories, 630 Washington Street, Boston.

EASYON TRUCK CHAINS

Chains to go around the tread of the tire and fasten around the spoke. Portion going around spoke covered with leather. Made in sizes for tires from 1½ in. to 7 in. and also for dual tires. Prices 65 cents to $2 each or $7.80 to $24 per set of twelve. Packed eight, ten, twelve, fourteen or sixteen to the bag.—Woodworth Mfg. Corp., Niagara Falls.

PETELER LIFTING JACK

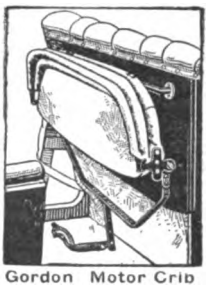
A lifting jack which is placed in position beneath the car by a long telescoping handle having a short stroke, raising the car ⅜ in. on each stroke. To lower the car, the handle is turned, operating a small lever which reverses the action and the load comes down step by step. When all the load is off the jack, a slight lift of the handle allows the lifting bar to drop the remaining distance at once and the jack can be withdrawn by the handle, handle taken out and the parts stowed away. Capacity 3000 lbs. Price $6. —Coe-Stapley Mfg. Corp., 115 Broadway, New York.



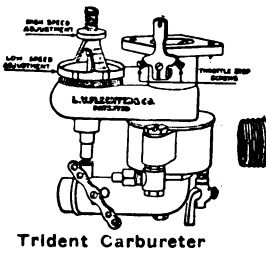
Demoin Touring Tent



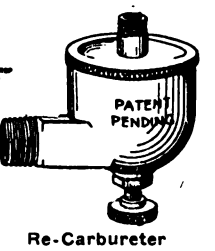
Hart Bell Carbon Remover



Gordon Motor Crib



Trident Carburetor



Re-Carbureter



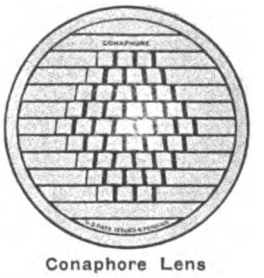
Red Head Display Cabinet



Victor Pump



Easy Truck Chain



Conaphore Lens



Peteler Jack



Economy Vapor Plug

CELL-BEAM CONCEALED SPOTLIGHT

A spotlight which is small enough to carry in the pocket of the car instead of on the windshield. Can be used as an inspection light. Throws concentrated beam 500 ft. and diffused light near by. Weighs less than 1 lb., and has a 30-cp. bulb, uses 6-volt or any other current and sells for $5.—Cell-Beam Corp., 501 Fifth Avenue, New York City.

GORDON MOTOR CRIB

A folding baby crib attached to the back of the front seat and held in open position by a spring connection made to the back seat or floor with an adjustable strap. The crib thus suspended is free of shock or jar and does not interfere with the entrances. An adjustable hood protects the child and the motor crib can be bolted in compact space. Size 32 x 14 in. Price $10.—Gordon Motor Crib Co., 27 South Water Street, Chicago.

RE-CARBURETER CARBON REMOVER

A device to be screwed into the intake manifold which can be connected by a tube to the radiator to draw moist air into the manifold, or it can be used as a primer cup. Price $2.—J. M. Kelley, 80 N. Water Street, Rochester.

VICTOR TIRE PUMP

A three-stage hand compressor fitted with brass tubes delivering the air to the tire on the down stroke produces a large flow of air with a minimum of energy. Price $5.—Judd & Leland Mfg. Co., Clifton Springs, N. Y.

NORWESCO TOP AND UPHOLSTERY DRESSING

A dressing for leather, Pantasote and upholstery. Water-proofs, softens and preserves material and gives egg-shell flat-black finish. Pints 75 cents, quarts $1.25.—Northwestern Chemical Co., Marietta, Ohio.

DEMOIN TOURING TENT

A Ford-size touring tent for one side of the car or for both sides as desired. Made of khaki waterproof and sells for $40 for the one-size model and $2.50 per foot for each additional foot above 11 ft.—Des Moines Tent & Awning Co., 913-915 Walnut St., Des Moines, Ia.

CONAPHORE HEADLIGHT LENS

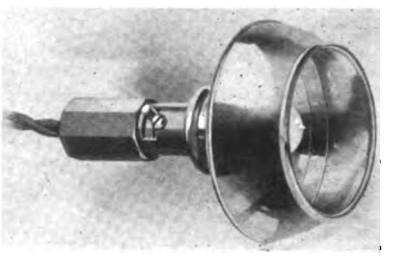
A headlight lens causing beams of light to extend in a long intense beam, neither down nor directly in front of the car nor up in the air. Made in clear and Noviol glass, the latter for eliminating back glare and penetrating fog or dust. Made to fit all lamps. Prices range from $1.30 to $6 per pair for Noviol glass and 80 cents to $4 per pair for clear glass.—Edward A. Cassidy Co., Inc., Madison Avenue and 40th Street, New York City.

ECONOMY VAPOR PLUG

An auxiliary air valve attached to the intake manifold, adjustable in such a manner that the proper amount of air will be automatically drawn in through the device to compensate for the varying speeds of the engine. Attached by drilling 11/32 in. hole in the manifold and tapping ⅛ in. pipe thread. Price $3.50.—The Aristos Co., Warren, Ohio.

MOORE'S SOAPS

Mooreoil Soap is in neutral paste form and cleans by absorption rather than abrasion. For cleaning highly polished surfaces. Moore's Vegetable Oil Soap is in semi-solid form and lower in cost than potash soap. Useful in garages. Moore's gelatine soap is a vegetable jelly for cleaning tile floors, wood-work and scrubbing. Moore's Laundrine Soap is put up in bulk form, lathers freely and is used for rugs, mats, cushions and tops.—Moore Oil Co., York St. and McLean Ave., Cincinnati, Ohio.



Cell-Beam Spotlight

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HIGHWAY FIFTH WHEEL TRAILER

A two-wheel trailer attached to truck or tractor by a fifth wheel. Made in five models as follows: Model E-5 carries 1-1½ tons, 56 in. tread, 36 x 3 in. tires, 20 in. diameter fifth wheel, price $365. Model F-5 carries 2-2½ tons, 56 in. tread, 32 x 3½ in. tires, 20 in. diameter fifth wheel, price $445. Model G-5 carries 3-4 tons, 58 in. tread, 36 x 5 in. tires, 25 in. diameter fifth wheel, price $765. Model H-5 carries 5-7 tons, 60 in. tread, 36 x 5 in. tires, 25 in. diameter fifth wheel, price $965. Model J-5 carries 8-10 tons, 66 in. tread, 36 x 5 in. dual tires, 36 in. diameter fifth wheel, price $1165. Fifth wheel permits oscillation at every angle by means of springs.—Highway Trailer Co., Edgerton, Wis.

GTL RIM TOOL

A push and pull rim tool having a sliding or adjusting bar that moves to and fro in an E shape heavily ribbed channel. The slot in the connecting link allows the adjusting bar to move backward, allowing the tool inside rim for unlocking rim, pushing joint apart and pushing rim and joint to place. It also allows car to move forward for attaching hooks to outside of rim. Made in two sizes, No. 1 for 30 to 36-in. tires, priced at $3.50 to $4.50, depending on finish, and No. 2 for 36 to 42-in. tires from $3.75 to $5.—Metal Products Mfg. Co., 2416 University Avenue S. E., Minneapolis.

C. S. RIM TOOL

A malleable iron tool for contracting demountable split rims. Ends hook over opposite sides of rim, and tool is contracted by a lever the centers of which pass each other when lever is pushed down, thus holding the rim in contracted position while tire is being changed. Weighs less than 2 lbs., and sells for $2. Dealer's price, $1.35.—Canton Specialty Co., Canton, Ill.

MILLER AUTO BED

A bed for camping which folds in two parts, one end being fastened to the runningboard and when in use the other end folds down and the runningboard forms one of the legs. When folded up it stands vertically on the runningboard and is covered with a dust-proof cover. Price of the bed alone is $25, 3-in. mattress $8, 10-ounce canvas waterproof tent $10, waterproof cover $4.—Miller Auto Bed Co., Oakland, Cal.

WOODWORTH SPRING COVER

A felt lined, oil and water-proof covering that laces over and completely encloses springs. Felt lining is soaked with oil before putting on. Furnished for all makes of cars. Display sign, order blanks and selling helps furnished to dealers with first order.—Woodworth Mfg. Co., Niagara Falls, N. Y.

BEST RIM CONTRACTOR-EXPANDER

A turnbuckle device for expanding and contracting split demountable rims. Hooks adjust themselves and are pulled together by the turnbuckle until the slack is taken up, when the hooks pull the rim together. Price $3.50.—Fish-Best Co., 730 Lumber Exchange, Chicago.

WOODWORTH LOCK CHAINS

Strong welded chains for locking spare tires, locking front wheel to frame of car, etc., covered with leather to protect paint or varnish. Made in 36 and 42 in. lengths and in three qualities at prices from 65 cents to $2.75. Discount of 33 1-3 per cent to dealers in lots of a dozen.—Woodworth Mfg. Corp., Niagara Falls.

B-W COIL TESTER FOR FORD CARS

A wooden base on which is mounted a low-reading ammeter, receptacle contact springs in which to place the coil to be tested and adjusted, binding posts for connecting to a storage battery or dry cells, an adjustable spark gap and a switch for making or breaking the circuit. The spark gap on the coil tester takes the place of the spark plug in the engine and should be set about ¼ in. Price $6.—Ballman-Whitten Mfg. Co., 4440 Olive St., St. Louis.

McINTYRE 7-PASSENGER FORD BODY

A device to convert the standard five-passenger Ford into a seven-passenger car. An 18-in. extension panel is just back of the rear door. The additional cross and side braces are mitered, glued and screwed. The outside metal is accurately fitted and screw heads soldered, 42-in. channels strengthen and lengthen the frame. Running boards, top, floor and shaft are lengthened. The outfit is complete with two additional 18-in. side curtains. Price $510, including new Ford car and all accessories, $150 for converting five-passenger touring car into a seven-passenger and $225 for converting two-passenger car into seven-passenger.—McIntyre Motor Products Co., Chicago.

GOODRICH THERMOSTATIC CARBURETER CONTROL

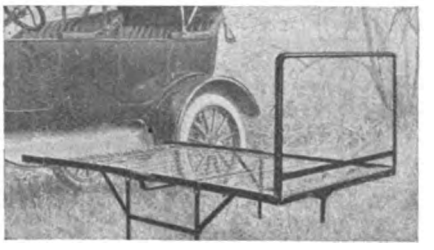
A device to control the needle valve of the carbureter by means of the heat of the engine. When the engine is cold a richer mixture is fed than when it warms up. Price $5.—Goodrich-Lenhart Mfg. Co., Widener Building, Philadelphia.

COLD WATER CARBURETER AND PRIMER

A device to allow water in the form of finely divided spray to be drawn into the intake manifold in direct proportion to the work of the engine. Consists of a tank attached over the engine, a tube and a water carbureter. Price complete with tank, $25.—Automobile Appliance Co., Drexel Building, Philadelphia.



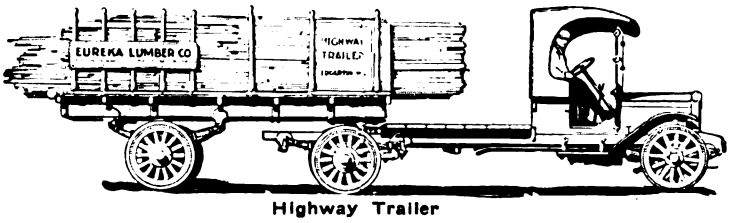
GTL Rim Tool



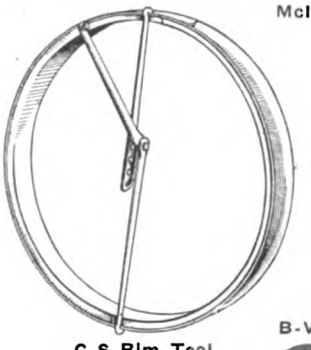
Miller Auto Bed



McIntyre 7-passenger Ford Body



Highway Trailer



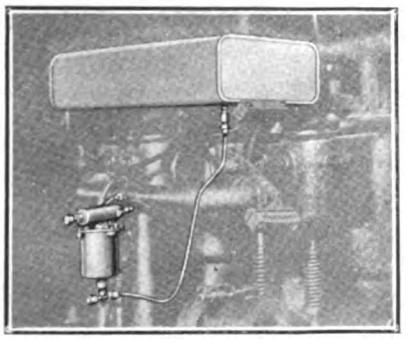
C S Rim Tool



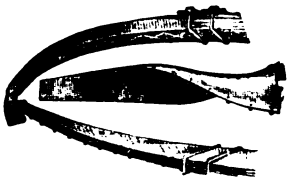
B-W Ford Coil Tester



Goodrich Thermostatic Control



Cold Water Carbureter



Woodworth Spring Cover



Woodworth Lock Chains



Best Rim Contractor-Expander

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RIE NIE PATCH

A patch for tubes or casings made of a layer of raw rubber and a layer of vulcanized rubber backed by a khaki fabric. Small size (36 sq. in.) 50 cents, large size (108 sq. in.) $1, shop size (648 sq. in.) $5.—Durkee-Atwood Co., Minneapolis.

BLAXSHINE ENAMEL

A quick drying black enamel, easy to apply, which dries in 1½ hours and hardens over night. Flows evenly, is durable and resists 450 deg. of heat. Dealers are furnished with counter signs and each package is accompanied by a silver monogram. Price $2.85 per package, containing sufficient Blaxshine for one car, and complete outfit for applying.—Twin City Varnish Co., 208 North Wabash Avenue, Chicago.

KNICKERBOCKER RUNNINGBOARD LUNCHEON CASE

A runningboard case including a refrigerator container for ice. Sizes from 9 x 4½ x 15 in. to 28 x 11 x 18 in., furnished either empty or with dishes, cutlery, food boxes, etc., at prices from $3 to $40.—Knickerbocker Case Co., Fulton and Clinton Streets, Chicago.

WOODWORTH CLEAR LIGHT LENS

A headlight lens to eliminate glare and throw light on road. Smooth on the outside, of heavy, clear glass. Price per pair $3 for 8 to 8½ in., $3.75 for 8¾ to 9½, $4.50 for 9¾ to 11 in. Twenty-five cents per pair additional west of the Rockies.—Woodworth Mfg. Corp., Niagara Falls.

BEST VALVE LIFTER

A valve lifter with notches along the handle so that the spring can be held compressed by means of a link while the valve is removed. It can be used on nearly all makes of cars and is malleable iron. Price 60 cents.—Fish-Best Co., 730 Lumber Exchange, Chicago.

ROSE TIRE PUMP

A hand tire pump with patent valve to make pumping easy. Has turned wooden handle and footplate on one side.—J. H. Haney & Co., Hastings, Neb.

REES LIFTING JACK

A double worm-gear lifting jack operated by a folding crank handle. Made in two models. No. 1 has a capacity of 2 tons, weighs 12½ lb., and has a lifting range of 10 to 16 in. Price $8. No. 2 has a capacity of 5 tons, weighs 21 lb., and raises 12 to 18 in. Price $17.—United States Jack Co., Union Arcade Building, Pittsburgh.

JOHNSON'S RADIATOR CEMENT

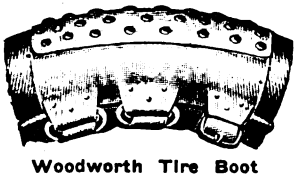
A liquid cement to heal radiator leaks in less than 10 minutes. Is poured through the filler while engine is hot and is soluble in water till it reaches the leak, when the air hardens and toughens it. Prepared in half-pint containers, 65 cents; pints, $1, and quarts, $1.75.—S. C. Johnson & Son, Racine, Wis.

BLAKE CLAMPLOCK

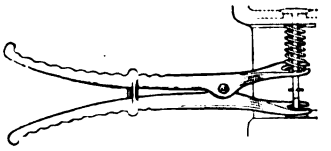
A combination clamp and lock to fasten trunks and other articles to the runningboard. Consists of a modified C-clamp, the upper arm of which fits into a lug riveted on the article to be clamped to the runningboard. The lower arm of the clamp has a screw with a head turned by a special key. Requires no boring of holes in the runningboard and does not mar the finish. Price complete with two lugs and two key wrenches, $2.50.—Blake Mfg. Co., Emerick and Madison Streets, South Bend, Ind.



Knickerbocker Luncheon Case



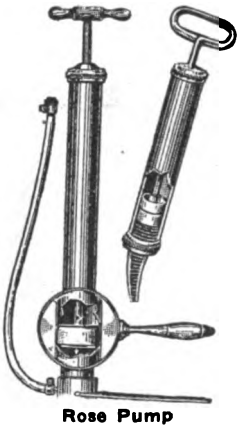
Woodworth Tire Boot



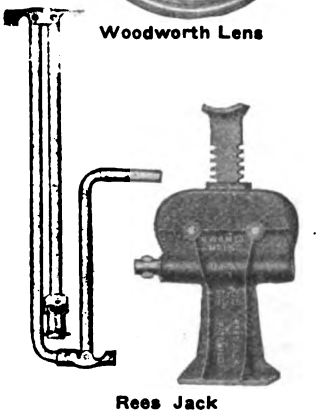
Best Valve Lifter



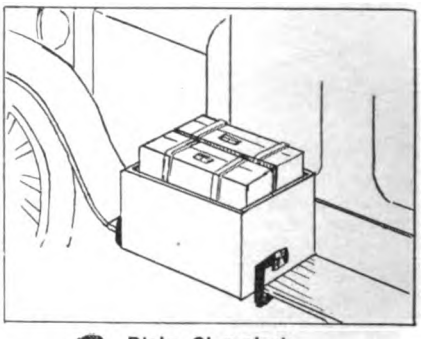
Woodworth Lens



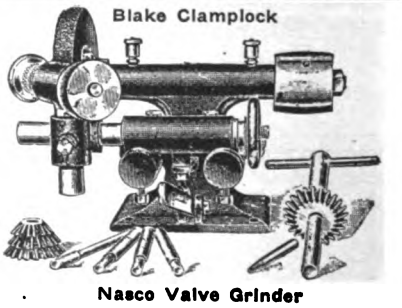
Rose Pump



Rees Jack



Blake Clamplock



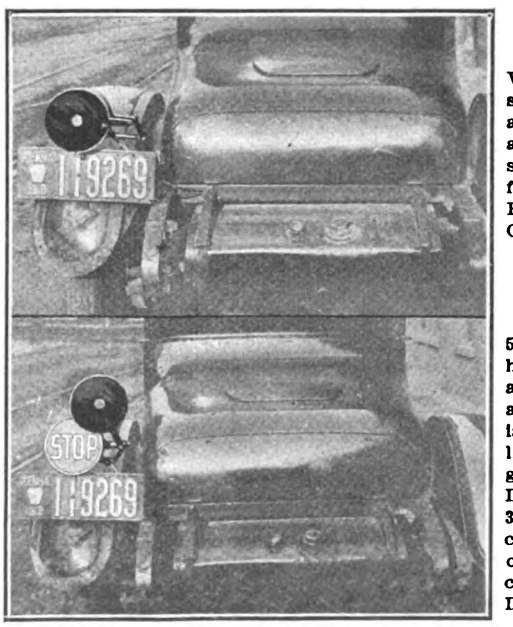
Nasco Valve Grinder

WOODWORTH LEATHER TIRE BOOTS

Tire boots of heavy chrome tanned leather, studded with steel rivets. Hook-on style has thin hooks to engage clincher rims. Strap-on style is held with strong leather strap lacing through rings on each side adjusted by buckle. Laced-boot laces across rim with strong leather lacing. Prices, for 3½ in. size, hook-on boots $1 in grain leather, 75 cents in split leather; strap boots $1.25 in grain leather, $1.10 in split leather; laced boots $1 for grain leather, 90 cents for split leather. Dealer discount of 35 per cent in lots of a dozen. Display signs, circulars, electrotypes and lantern slides furnished to dealers.—Woodworth Mfg. Corp., Niagara Falls.

ARCO CARBON ELIMINATOR

A metal tank installed on the exhaust manifold with connections to the intake manifold and the cooling system. Water is kept in the tank automatically by vacuum and goes from there to the cylinders, removing the carbon by steam. Price $17.—Automatic Carbon Eliminator Co., Inc., 2010 Broadway, New York.



Vacu-Rear Signal

NASCO VALVE GRINDER

A grinding head for refacing valve seats. With the accessories supplied, almost any size valve may be refaced. Driven by belt and fitted with fine emery wheel set at right angles to valve holding device. Four reseating cutters and suitable guides for refacing valve seats come with the outfit. Price $40.—National Auto Specialty Mfg. Co., Tama, Iowa.

VACU-REAR SIGNAL

A rear signalling device consisting of a 5-in. diameter tail lamp with license tag holder combined. The lamp is covered by a shield, the red tail light showing through a hole in the center until the brake pedal is depressed by the driver, when the shield lifts, exposing frosted letters "Stop" on ruby glass. Letters are distinctly visible in day. Device operates by engine vacuum through 3/16-in. tube, there being no rods, cables or cranks to require lubrication, replacement, or other inconvenience to the operator of the car. Price $15.—Automobile Appliance Co., Drexel Building, Philadelphia.

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RIE NIE PAINTING OUTFIT

A sufficient amount of enamels for refinishing all parts of a small car. Standard outfit black, other colors substituted if desired. Outfit includes leather and Pantasote dressing, body enamel, running gear paint, hard rubber air drying black enamel for lamps and trimmings, engine enamel and varnish for dash together with necessary brushes. Price $4.50.—Durkee-Atwood Co., Minneapolis.

G-P MUFFLER CUTOUT

A cutout with a valve tongue and seat so constructed that when the cutout is opened the line to the muffler is completely closed. Area of sections of each part of the cutout is greater than the area of the exhaust pipe. Ends are bored to exact size of exhaust pipe with shoulders at each end and set screws to prevent shifting. Packed in substantial box. Special model made for 1916 and 1917 Packard Twin Six (double exhaust), $7, and special model for Fords complete with pedal and chain, $4.50. Other models range in price from $4.50 to $5.50, depending on size. —Edward A. Cassidy Co., Inc., Madison Avenue and 40th Street, New York City.

WOODWORTH NO-STRETCH FAN BELTS

Fan belts of non-stretching fabric with specially treated leather stitched on face. Oil and water-proof. Price 40 cents for endless type of Fords. With detachable hook 50 cents. Also furnished in coils, widths ⅝ to 1¼ in. wide at from 12 to 20 cents per ft.—Woodworth Mfg. Corp., Niagara Falls.

RELIABLE BEVEL GEAR JACK

A handle-controlled gear-operated jack, giving a lift on the upstroke of the handle as well as the downstroke. Detachable handle is 16 in. long with telescopic steel extension to 30 in. A turn of the handle reverses the movement of the screw to raise or lower the car as desired. Weighs 9 lb.; extension from 10½ to 17 in.; capacity 2 tons; price $4.50.—Elite Mfg. Co., Ashland, Ohio.

EVERLASTING AIR HOSE

Air hose compressors and air stations, constructed of treated heavy double cotton jacket woven on high grade rubber air hose. Is claimed not to kink, buckle, or be harmed by being run over and will stand any pressure. In 25- and 50-ft. lengths, coupled if desired. In ¼ and ⅜ in. sizes.—Chicago Tubing & Braiding Co., 216-224 N. Clinton St., Chicago.

EVERBRIGHT BODY POLISH

A liquid preparation for polishing bodies to remove dirt, grease and marks and restore the original finish. Pints 75 cents, half gallons $1.75, gallons, $3.—Everbright Mfg. Co., 409 Golden Gate Ave., San Francisco.

AMERICAN CONVERTIBLE BODY

A convertible body which can be changed in a few minutes to form different types suitable for general farm use. The forms include grain-tight body, flat rack with scoop board, flared body, hog rack, stock rack, flared rack, and basket rack. Prices range from $80 to $125, depending on size.—American Wagon Co., Dixon, Ill.

AC SPARK PLUGS

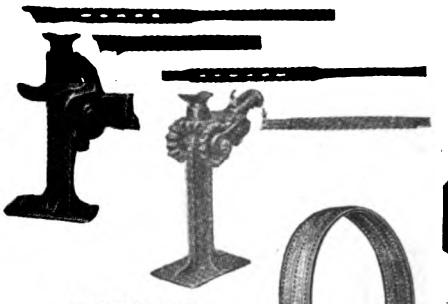
AC Carbon Proof has a porcelain with saw edges which heat enough to burn the carbon. Designed especially for Ford, Overland and Studebaker cars. AC Titan is a one-piece construction. Price $1 for each model.—Champion Ignition Co., Flint, Mich.

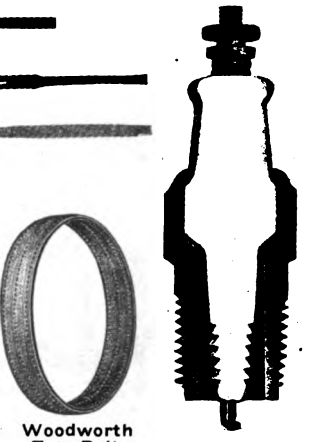
TRUXTON TRUCK UNIT

A device for converting a passenger car into a truck, consisting of a lengthened frame and propeller shaft, solid steel rear axle and rear wheels driven by an internal gear. It is made in 1¼ and 2-ton sizes and can be attached to either a new or used car of almost any make. Bodies are optional with purchaser, prices depending on the type specified. Made in four standard models at prices from $410 to $560 for the units only depending on wheelbase and kind of car they go on.

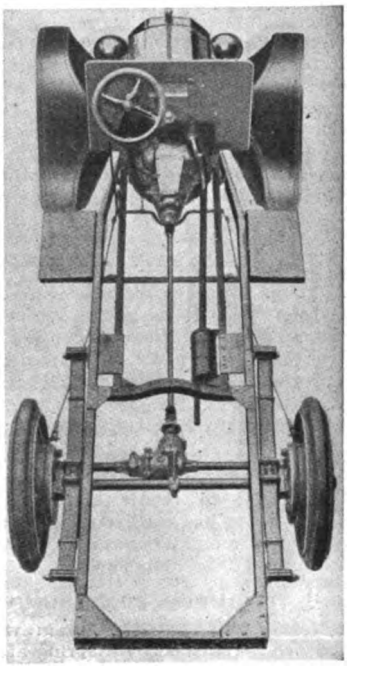


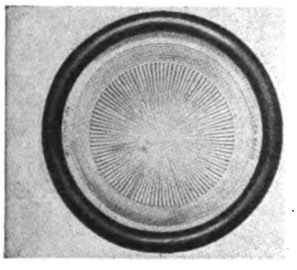
G-P Muffler Cut-Out


Reliable Jack


Woodworth Fan Belt

AC Spark Plug


Truxton Truck Unit


Culver Radio Lens



Air-Friction Carbureter



Everlasting Air Hose

CULVER RADIO LENS

A headlight lens of convex shape with ½ in, flat margin around outer edge to fit frame of lamp. Prisms radiate from the center to within ⅞ in. of the flat edge, and the space in between has seven prism circles. Prisms deflect direct rays and diffuse light. Smooth on outside so it can be kept clean. Price $3 per pair for all sizes.—Culver Superior Glass Co., 1029-1035 W. Adams St., Chicago.

AIR-FRICTION CARBURETER

A carbureter with a spray nozzle which is so arranged that the fuel orifice is at right angles to the flow of air. Fuel is released between two disks, the lower of which has holes drilled in it to permit mixture of some air between the surfaces, breaking up and atomizing the fuel before it strikes the incoming air. All air, whether at high or low speed, is taken through one opening and is all heated so that no condensation can take place. Price of 1-in. instrument is $14.53, and 1¼-in. is $16.98, these prices being 30 per cent off list.—Air-Friction Carbureter Co., Dayton.

WIZARD WASHER

A set of two brushes fitted with an attachment by which they can be attached and detached instantly to any garden hose nozzle. One of the brushes is of a material that is not affected by kerosene, and this brush is used for running gear, removing tar, etc. The other brush is larger, about 2 ft. long, of camel's hair twisted into galvanized wire and is intended for the body. Both brushes have a long twisted galvanized wire handle with a hole in the end through which the hose goes, and this may be used as a handle to reach under the car. Price $2.50 for the two brushes; $1.75 for camel's hair brush alone, $1.25 for fiber brush alone.—Edwin S. Calkins, 106 Charles Avenue, Solvay, N. Y.

RED WONDER TIRE PUMP

A single-acting, single-cylinder hand tire pump with heavy steel cylinder threaded into a foot base of heavy construction. Valve is solid brass with an indestructible flexible seat. Piston has special guide and chemically treated cup leather. Plunger rod is 7/16-in. cold rolled steel with hardwood handle. Cylinder and base japanned and baked glossy red and handle enameled black. Made in sizes 1¼ x 20 in. and 1½ x 17 in. Price $4, west of the Rockies $4.25.—Sidel-Rattner Mfg. Co., 31-35 Broadway, Brooklyn.

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PANTHER SPARK PLUGS

Spark plugs with either conical or petticoat porcelain, and made in twenty-two sizes covering the three threads. Packed in two-piece boxes and thirty-six plugs to the carton. Square shoulders have been avoided in the porcelains.—B. A. T. Co., Wayne Junction, Philadelphia.

HAUSER ENGINE-DRIVEN PUMP

An engine-driven tire pump operated with plain connecting rod and crankshaft. Has automatic poppet valves for both intake and outlet, three piston rings, a baffle plate to prevent oil splashing up, and babbitt bearings. Breather tubes follow contour of baffle plates and on upstroke of piston, fresh air is drawn in and distributed in compression chamber below the rings. On down stroke of piston, compression is relieved by exhausting direct to the atmosphere through these tubes so that compression cannot get into crankcase. Price, complete with all fittings for attachment to car, hose, and gage, $16.50.—Hauser Machine & Mfg. Co., Inc., 232-234 Mill St., Rochester.

NU-BACK REFINISHERS

Leath-R-Nu is for renewing leather and pantasote, cushions and tops. Dries in 15 min., leaving material soft and pliable. Waterproof Mohair Top Dressing is for restoring original black finish to faded tops and to waterproof them. It dries in about 1 hr. Nu-Auto is a quick-drying high-luster enamel drying hard over night and made in black and six other colors. Lining Dye is intended for drying the inside of top and curtains, producing a jet black finish and drying in 1 hr.—Nu-Back Mfg. Co., 114 North Commercial Street, St. Louis.

STEERING WHEEL FOR CHEVROLET

A 17-in. diameter steering wheel for the Chevrolet "490" to be had in either plain or corrugated rim. Finish is black enamel. Price $3.50 with plain rim, $4 with corrugated rim.—Gemco Mfg. Co., Milwaukee.

PANTHER RADIATOR CEMENT

A liquid radiator cement containing a high average of iron crystals, requiring about a tablespoonful to repair a leaky radiator. Price 75 cents per can containing enough to repair four to eight radiators.—B. A. T. Co., Wayne Junction, Philadelphia.

TWOMBLY FOOT PUMP

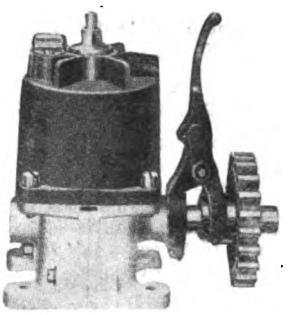
A foot-operated tire pump in which the foot lever is returned by a spring after being depressed, and a toggle joint gives sufficient leverage so that 100 lbs. can be pumped with little effort. Price $5, with gage $6.—Edward A. Cassidy Co., Inc., Madison Avenue and Fortieth Street, New York City.

LUCAS AUTOMOBILE FINISH

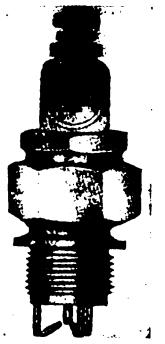
A ready-to-use finish drying with a rich gloss, put up in friction-top quart and half-pint cans. Colors are black, gray, Brewster green, fawn, deep blue, yellow, roadster red, vermilion, radiator black and white. Dealers' assortments at $24.21 and $48.42 less 40 per cent discount. Color cards, selling helps and a display stand with a celluloid window, outlining a car in black, so that different color cards can be put in back to make the car appear in different colors, are furnished free with these orders.—John Lucas & Co., Inc., 22 Race Street, Philadelphia.

OHIO KARBON KILLER

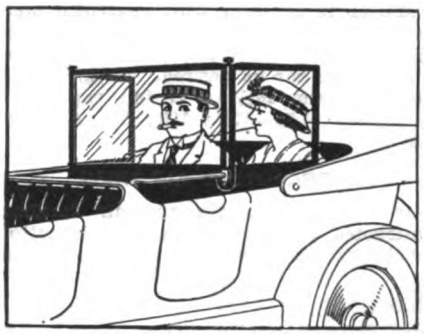
A heavy grease intended to be dissolved in the gasoline in the proportions of a spoonful to 5 gal. of gasoline. Price $1 in 1-lb. lithographed can.—Ohio Grease Co., Loudonville, Ohio.



Hauser Engine-Driven Pump



Elgin Plug



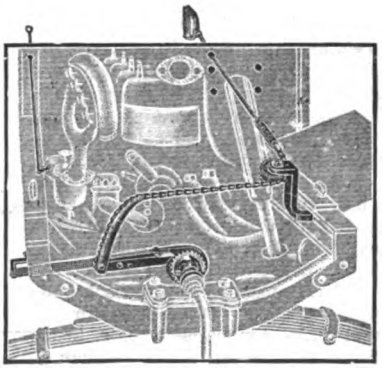
J. H. Tonneau Windshield



Gemco Steering Wheel

Thomas Timer Elevator

Twombly Foot Pump



Miller Cranker for Fords

HOLLEY MANIFOLD FOR FORDS

An intake manifold for Fords in which exhaust gas passes through a jacket surrounding the manifold. The amount of gas admitted and consequently the heat, is controlled by a rod on the dash. It is a complete unit and replaces the Ford manifold without drilling or machine work. Price $11.50. — Holley Kerosene Carburetor Co., 145-147 Willis Avenue, E., Detroit.

ELGIN SPARK PLUGS

Spark plugs have porcelain insulators, central electrode and three outside electrodes. Furnished in all threads and sizes. Price $1. — Elgin Motor Power Mfg. Co., Cedar Rapids, Iowa.

MILLER CRANKER FOR FORDS

A device for cranking a Ford from the seat by a handle extending through the dash, connected by chain and a ratchet arm which engages a wheel on the crankshaft. Entire device weighs but 5 lb.; can be installed without machine work and the old crank is left on. Price $7.50.—Miller Mercantile Co., Memphis, Mo.

JOHNSON'S CARBON REMOVER

A liquid carbon cleaning compound intended to be placed in the cylinders in small quantities periodically. Put up in half-pints selling for 65 cents, pints $1, and quarts $1.75.—S. C. Johnson & Son, Racine, Wis.

INGHAM'S PERFECTION POLISH

A liquid polish to preserve the original finish. Easily applied and quickly removed so that dust will not adhere. Also used to bring back luster on dirty and dull finishes. Price 25 and 50 cents.—Perfection Polish Co., Waverley, N. Y.

THOMAS TIMER ELEVATOR

A device to elevate the Ford timer so that the wiring is taken up out of the grease and oil and the timer is more accessible. It consists of a housing attached to the crankcase by slipping it under the nuts. A bevel gear is on the end of the timer shaft and this drives a vertical shaft. It can be installed in about half an hour without removing radiator. Price $5.—Thomas-Andrews Corp., Waukegan, Ill.

COMMON SENSE POLISH

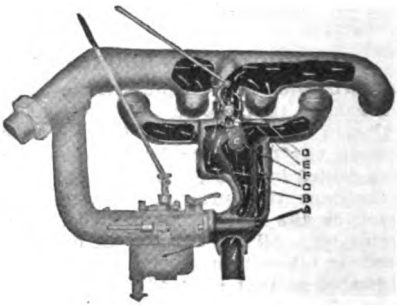
A liquid polish to clean and polish in one operation. Removes oil, grease and dirt and leaves a dry polished surface. Price, small size, 35 cents; pints, 75 cents; quarts, $1.50; gallons, $4.50.—Common Sense Mfg. Co., St. Louis.

J H TONNEAU WINDSHIELD

A windshield for rear seat consisting of a central main frame and two folding wings with glass. A removable apron hangs from the bottom of the shield, affording protection from drafts under the shield when it is drawn back. Mounted on a pair of extending steel arms so that shield can be drawn close to passengers. Parts work by friction and lock, and the wings can be set at any angle. —Tonneau Shield Co., 1778 Broadway, New York.



Panther Giant Plug



Holley Manifold for Fords

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FORD IGNITION WIRES

A complete primary and secondary wiring set of high-grade wire with cables cut to correct length and finished with soldered terminals or black rubber nipples as desired. Low-tension wires are protected with cable insulation where exposed to grease. Furnished in contrasting colors for easy replacement.—S-E Motor Engineering Co., 14 East Jackson Boulevard, Chicago.

CLARK TONNEAU WINDSHIELD

A two-piece tonneau windshield fastened on the side of the rear seat. The two sections are separate and can be swung in any direction. An apron is suspended from the lower edge of each section. It can be quickly removed by loosening one nut.—A. N. Clark & Son, Plainville, Conn.

MOXOTIRES

This is an inner shoe with one side made like a straight-side tire having a tough, endless steel hook laid in it. This hook just fits the rim and makes it impossible for this side to blow out. The opposite side has no hook, but is made very wide so as to cross between the tube and the rim up the other side of the tire past the hook. It thus completely encircles the tube. Made in sizes from 3 to 6 in.—K & W Rubber Co., Ashland, Ohio.

DEAD EASY TIRE PUMP

A two-stage tire pump clamped to the runningboard and operated by a handle which is worked back and forth. A gage in plain view while pumping shows tire pressure. Dimensions without handle are 5 x 8½ x 9 in., weight 15 lb. Handle is in two sections, each 16 in. long. Equipment includes gage, 12 ft. of hose, tire valve connector and clamps for attaching to runningboard. Finished in black enamel with nickeled cylinders and trimmings. Price $15.—Globe Mfg. Co., Battle Creek, Mich.

WARNER UPHOLSTERY COVERS

Upholstery covers held with glove fasteners, easily snapped on or removed for washing or cleaning. Made in a variety of colors, striped, plain and mixed, for all models of cars at prices depending on size of car and quality of material. Set for Fords, without top cover $15 for touring car, $7.75 for roadster.—Warner Auto Top Co., 1646-50 Central Ave., Cincinnati.

GEMCO E-Z TILT STEERING WHEEL

A steering wheel for Chevrolet "490" that is quickly and easily tilted. Fits steering column and is secured with original key and nut. Spiders fit Chevrolet patterns perfectly. Wheel 17 in. diameter. Price $5 with plain rim, $5 50 with corrugated rim.—Gemco Mfg. Co., Milwaukee.

RIE NIE RADIATOR COMPOUND

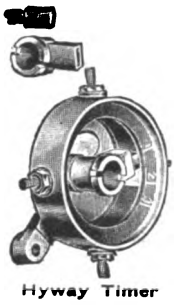
A powder which dissolves in the warm water of the cooling system and solidifies when passing through the leak to the air, making a permanent mend. Also cleans rust and scale formation. Price 50 cents in 6-oz. tins.—Durkee-Atwood Co., Minneapolis.

UNIVERSAL GREASE CUP WRENCH

A wrench for turning grease cups, pet cocks, etc., when they cannot be easily reached. Price 50 cents.—Prismolite Co., Fourth and Gay Streets, Columbus, Ohio.



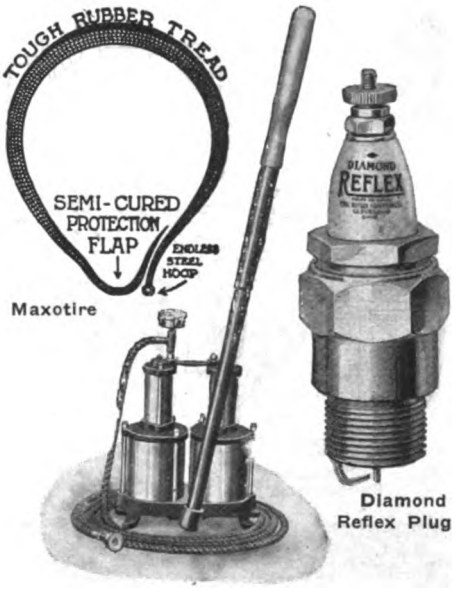
S-E Ignition Wire for Fords



Hyway Timer



Clark Tonneau Windshield

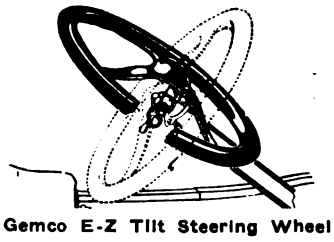


Diamond Reflex Plug

Dead Easy Pump



Cochran Spring Oiler



Gemco E-Z Tilt Steering Wheel



Davenport Vulcanizer

HYWAY TIMER FOR FORD CARS

An oilless timer with 50 per cent longer contact than the standard Ford timer, using a brush contact, the brush being of hardened brass and slightly curved to fit the ring. The shell is stamped steel with black enamel finish and the insulation is bone dry fiber. Price $1.25.—Hyway Mfg. Co., 14 East Jackson Boulevard, Chicago.

McINTYRE COMMERCIAL BODIES

Commercial bodies for Ford chassis made in five styles, three for use on the regular chassis and two for use on 1-ton converted truck chassis. In the former class are the express body with top, convertible farm and stock body with stock racks, and one without stock racks. For the 1-ton trucks there is an express body with top and an all-season cab. Bodies built of hardwood, heavily ironed and braced and painted. Prices are as follows: Express body for 1-ton trucks, $131; all-season cab for 1-ton trucks, $58; express body for standard chassis, $73.50; same without stock racks, $66.—McIntyre Motor Products Co., 100-110 West Fifty-fifth Street, Chicago.

DIAMOND REFLEX SPARK PLUG

A large, massive plug for heavy duty engines and racing cars. Finished in bronze, has heavy Cromite petticoat porcelain and large electrodes.—Reflex Ignition Co., 1708 Payne Ave., Cleveland.

EVERBRIGHT TOP DYE

A liquid top dye intended to give a silky coal-black finish to mohair or canvas tops and to preserve them. Easily applied and dries in 30 min. Quarts $1.50, gallons $3.50. —Everbright Mfg. Co., 409 Golden Gate Ave., San Francisco.

LIQUID VENEER

A combined liquid polish and cleaner which is said to protect finish and not gather dust. Quart bottles $1. Packed in a special display case containing also a brass finish sprayer, $1.50.—Buffalo Specialty Co., Buf-

COCHRAN SPRING OILER

A wedge to be inserted between the leaves of the spring as far as the center, when it serves as a guide to conduct the oil to the place where it does the most good. Actual size 3 in. long.—Cochran Pipe Wrench Mfg. Co., Seventy-eighth Street and Woodlawn Avenue, Chicago.

NORWESCO MOHAIR TOP DRESSING

A top dressing and lining dye which dyes and water-proofs with one application. Pint cans 75 cents, quart cans $1.25.—Northwestern Chemical Co., Marietta, Ohio.

DAVENPORT VULCANIZER

A screw clamp vulcanizer using chemically-treated strawboard for producing heat to vulcanize different sized patches on inner tubes. Complete outfit costing $1.50 includes clamp, quantity of strawboard, patches, etc. —Davenport Vulcanizer Mfg. Co., Inc., Davenport, Iowa.

NOBLE'S STANDARD POLISH

A body polish which is neither explosive nor inflammable and will preserve lustre or enameled or varnished surfaces. Price $1 per quart.—Noble Piano Co., 971 Woodward Avenue, Detroit.

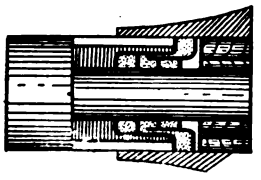
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KANT-LEEK GREASE WASHER

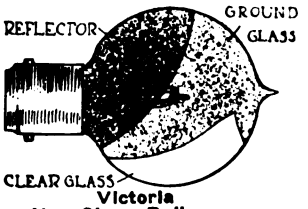
A washer to retain grease in Ford axles, consisting of two annealed steel cups between which are four oil-resisting felt washers. Applied by removing hub cap, nut, wheel and roller bearing, inserting washer on shaft and replacing parts. Price 75 cents a pair, packed in carton.—Apex Mfg. Co., Inc., St. Louis.

VICTORIA NON-GLARE BULB

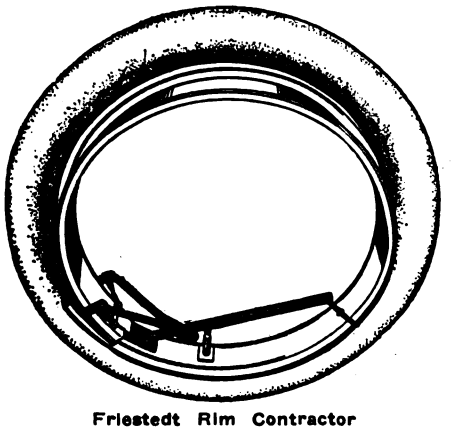
A lamp bulb partly mirrored, inside partly frosted and partly clear glass, the sections so arranged that light from the filament which would ordinarily go to the part of the reflector, causing glare, is reflected back to the part of the reflector throwing the light on the road. The frosted part is in between the mirrored and clean sections. The bulb has an adjustable collar so that it can be placed in correct focus.—Victoria Sales Corp., 33 West Forty-second Street, New York City.



Kant-Leek Grease Washer



Victoria Non-Glare Bulb



Friestedt Rim Contractor

FRIESTEDT RIM CONTRACTER

A rim tool that opens, contracts and relocks split demountable rims. It securely grips and supports both flanges of the rim, operates at the split and provides a leverage of 20 in. to break the rust, open the lock and overlap the rim ends. There are no clamps to adjust or bolts to tighten. The plain contractor will operate the Kelsey latch, Kelsey hinge and Stanweld rims. The Baker, Firestone and Kelsey Dovetail Contracters are adapted to these models only. The Universal Model is for shop use and can be quickly adapted to operate any rim. Prices are: Plain Contracter, $2; Baker Contracter, $3; Firestone Contracter, $3; Kelsey Dovetail Contracter, $3; Universal Contracter, $5.—Friestedt Mfg. Co., 2934-38 W. Lake Street, Chicago.

RIE NIE RADIATOR CEMENT

A liquid radiator cement to be placed in the cooling system, which solidifies on coming in contact with the air through a leak. Pints, $1, half-pints 60 cents.—Durkee-Atwood Co., Minneapolis.

LAZCO PORTABLE VULCANIZER

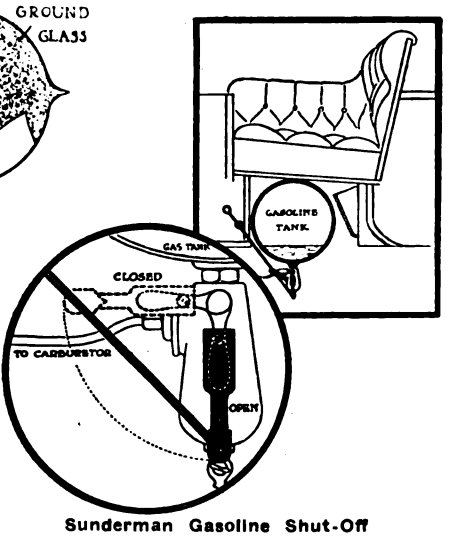
A portable vulcanizer for casing and inner tubes. Flame is inclosed so that it can be used on the road where there is wind or rain. Complete outfit includes the vulcanizer, chains and hooks for clamping around inflated tire, roll of repair rubber and piece of sandpaper. Price $1.50.—Lazarus Mfg. Co., 750-800 Prospect Avenue, Cleveland.

AUTO-KRAT TOP DYE

A liquid top dye to clean and color in one operation, for both inside and outside. Prices $1.50 per qt., $3.50 per gal.—Frank A. Crandall, 2134 Indiana Ave., Chicago.



Johnson Curtain Windows



Sunderman Gasoline Shut-Off



Lazco Portable Vulcanizer

JOHNSON CURTAIN WINDOWS

Bevel plate glass windows for flexible curtains which are made in three parts so that they can be permanently fastened into any curtain, the weight being supported by webbing. Made in rounds, ovals, diamonds and double diamonds at prices from $2 up.—Wm. R. Johnson Mfg. Co., 359-361 East Ohio Street, Chicago.

COMBINATION OVERALL SUITS

Combination suits made in two styles. Lot 20 is of heavy khaki and Lot 21 is of high count army duck, water and oil-proof. Both sets have six large pockets, plier, rule and pencil pockets, and adjustable leg bottoms and cuffs.—Beaver Dam Mfg. Co., Beaver Dam, Wis.

RIE NIE AIR-DRYING BLACK ENAMEL

An elastic enamel for all smooth finished metal surfaces which air-dries in a few hours to bone hardness. May be used for dipping, spraying or baking. Price, quarter-pints 25 cents, half pints 40 cents, pints 75 cents, quarts, $1.25, half-gallons $2.25. Colors other than black are: quarter-pints 35 cents, half-pints 60 cents, pints $1, quarts $1.75, half-gallons $3.—Durkee-Atwood Co., Minneapolis.

C-W FABRIC PATCH

A self-vulcanizing fabric patch for making a quick repair without heat or tools furnished in screw-top can, small size 50 cents, large size $1.—Cord-Wyckoff Tire & Rubber Co., 414-416 Douglass Street, Sioux City, Iowa.



Singer Traffic Signal

SUNDERMAN GASOLINE SHUT-OFF

A device to shut off the gasoline at the tank, which is operated by a short rod through a hole in the floor boards. Pushing and pulling the rod shuts and opens the cock. Especially designed for Fords. Price 50 cents.—Sunderman Corp., 9 Chambers Street, Newburgh, N. Y.

SINGER TRAFFIC SIGNAL

A traffic signal that flashes both front and rear the words "Stop," "Ahead" and "Back" in printed letters and arrows pointing either right or left for turning. Signals are illuminated at night and appear in white letters on a black background with the exception of the stop signal which appears on a red background. Control of the signals is by a push button on steering post close to wheel. Control buttons for interlocking preventing more than one signal being given at a time excepting in the case of stop signal which replaces any other signal in force when the brake is applied, and when it is released former signal appears. A pilot light informs the driver that the signal is in operation.—Singer Auto Traffic Signal Co., St. Louis, Mo.

NEVER-LEAK GASKETS

Cylinder head gaskets made in stock sizes for almost every car on the market. Also standard closed type gaskets, French type gasket, flange exhaust gaskets, spark plug gaskets, etc. Complete set of gaskets for Ford car. Price 63 cents.—Fitzgerald Mfg. Co., Torrington, Conn.

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KORECT REAR TIRE CARRIER

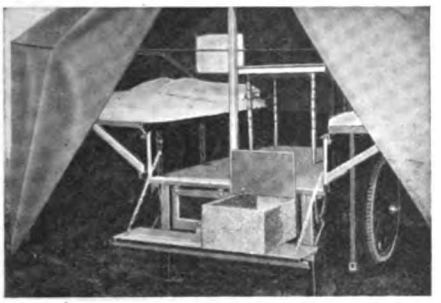
A rear tire carrier for all Ford casings with or without demountable rims which will fit all Ford bodies and fastens directly to the chassis without drilling holes. Prices range from $5 to $6.50.—New Era Spring & Specialty Co., Grand Rapids, Mich.

GOODRICH STEERING COLUMN LOCK

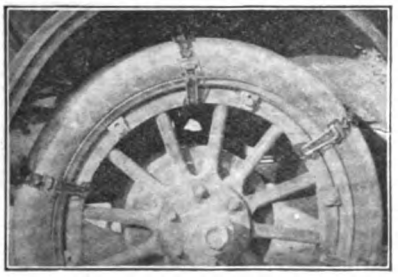
A device attached to the steering column with a plunger which when locked in the up position with the Yale lock prevents the spokes of the spider from turning. Easily installed without machine work. Price $10 for Fords, $12 for other cars.—Goodrich-Lenhart Mfg. Co., Widener Building, Philadelphia.

AUTO KAMP TRAILER

A two-wheeled trailer fitted with full camping equipment for four persons. Trailer has semi-elliptic springs, pneumatic tires and a draw pole and hitch with ball and socket connection. The equipment includes a heavy khaki duck tent, 7 x 12 ft., ash tent frame, ironed to fit sockets, two beds, 48 x 75 in., with Sagless springs, ice box and food compartment located under body floor, four feather pillows, electric light outfit, folding table, folding shelf, two-burner gasoline stove, etc. When folded up for traveling, the entire trailer and contents are covered with a water and dust-proof tarpaulin. Price $225.—Auto-Kamp Equipment Co., Inc., Saginaw, Mich.



Auto Kamp Trailer



Quick-on Mud Chain



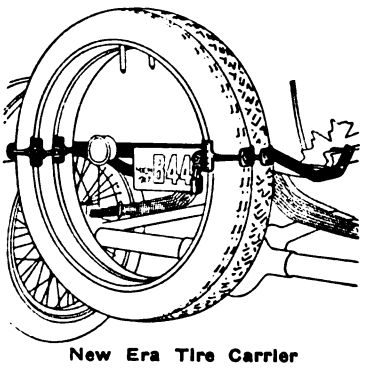
Nelson Collapsible Basin

QUICK-ON MUD CHAIN

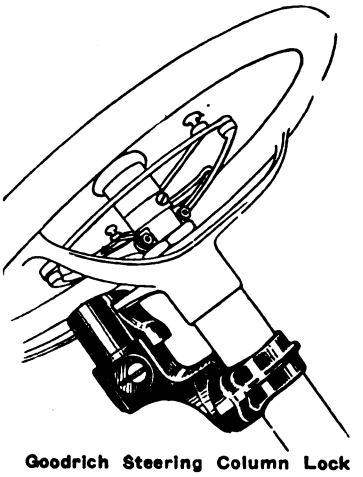
A chain clasped around tire and felloe which is put on and tightened by a cam and lever. Presses tight against tire and is flat so that it will not roll. Made from flat steel ⅛ in. thick, and tread plate is 2 in. wide. links 1¼ in. wide. Cam is on one end and loop on other, and cam hooks into loop. Leather is placed on steel band where it crosses felloe. Tread plate is corrugated to keep from slipping. Can also be used to hold swells and blow-outs. Price 40 cents for 3 and 3½-in. tires, 50 cents for 4 to 5-in. tires.—Kimball Tire Case Co., Council Bluffs, Iowa.

A-SCHO SPARK PLUG

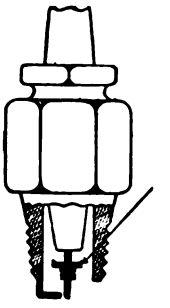
A self-cleaning plug having a movable metal washer on the central electrode which by hitting the bottom of the insulator keeps it free of carbon. A stop nut on the electrode marks the lower limit of travel of the washer. Price $1.50.—Apex Co., Evansville, Ind.



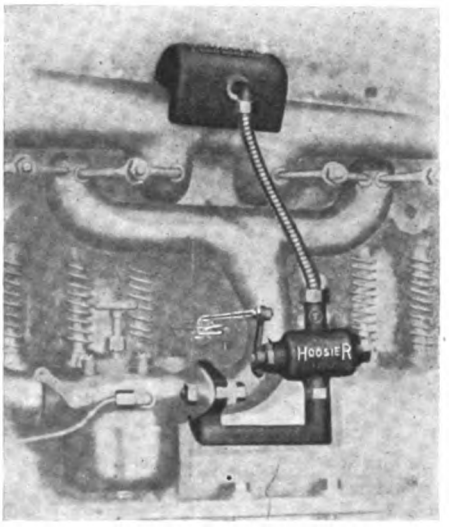
New Era Tire Carrier



Goodrich Steering Column Lock



A-Scho Plug



Hoosier Sub-Carbureter

HOOSIER SUB-CARBURETER

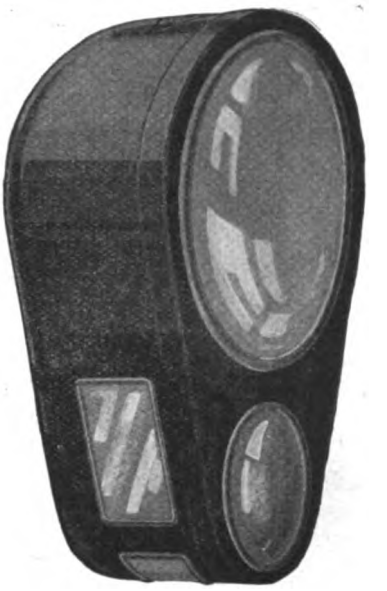
A device for applying heat from the exhaust pipe to a point between the carbureter and the manifold, or in the manifold, according to the car it is installed on. Price $10 for Fords, $11 for other 4-cylinder cars. $12 for 6-cylinder cars, and $14 for 8 and 12-cylinder cars. Sold on a 30-day free trial plan.—Hoosier Sub-Carbureter Co., Indianapolis.

CONTROLLITE LENS

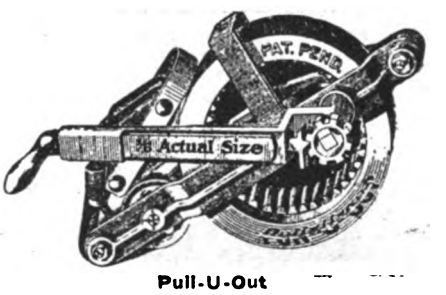
A headlight lens designed to make light beam intersect highway 20 ft. from the car and light an area 40 ft. wide, 30 ft. from the car. As the distance increases the light rays converge, concentrating the light for distance. The entire light beam is deflected. Furnished 8 to 8¾ in. diameter $3.50 per pair, 9 to 9¾ in. $4, 10 to 10¾ in. $4.50.—Super-Lighting Co., 1834 Broadway, New York City.

KING SAFETY TAIL LIGHT

A combined searchlight and tail light. By pressing a button, the white light is switched on and throws light 50 ft. in back of car and to the sides. Searchlight is 4 in. in diameter and red light is 2 in. Three windows at base of lamp illuminate license plate. Light, compact, black enameled and furnished with two bulbs, necessary connections, bracket and switch.—King-Bull Mfg. Co., Chicago.



King Safety Tail Light



Pull-U-Out

PULL-U-OUT

This is for pulling cars out of mud, lifting, hoisting, etc. Forty feet of steel rope, a pulley and two 7-ft. light-weight chains complete the device. Three light-weight steel stakes, T-braced and notched at the top to engage the chains are furnished with the equipment.—Price $20.—Pull-U-Out Sales Co., 2018 Market St., St. Louis.

COLLAPSIBLE BASIN

A collapsible basin or pan made of a single piece of canvas without seams suspended from a wire frame with reversible handles. Size is 11 x 13 x 4½ in. and when collapsed is only ½ in. thick. Retail price $1, dealer price 80 cents, jobber price 60 cents.—Nelson Bacon Mfg. Co., Oshkosh, Wis.

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GUIDE MINIATURE WINDSHIELD LAMP

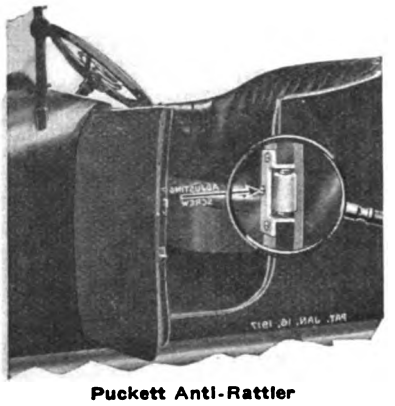
Small lamp with clear semaphore lens, outside diameter 2 in. Weight ¾ lb., and can be attached to either Ford or truck windshield frames by two bolts now on the frame. Operated on two dry cells and can be used as signal lamp or to take the place of oil lamp. Price $2 per pair, complete, with bulb.—Guide Motor Lamp Mfg. Co., Cleveland.

PUCKETT DOOR ANTI-RATTLER

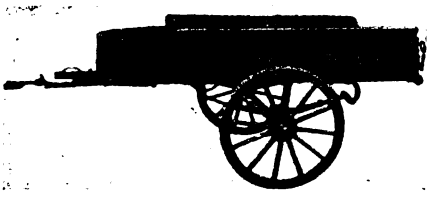
A device to be let into door jamb to prevent rattling and consisting of a rubber roller contained in a small frame with adjusting screw. Price 50 cents, packed in a box, twelve boxes in a display carton.—Western Auto Specialty Co., Iowa City, Ia.

BEHLEN TOURING TRAILER

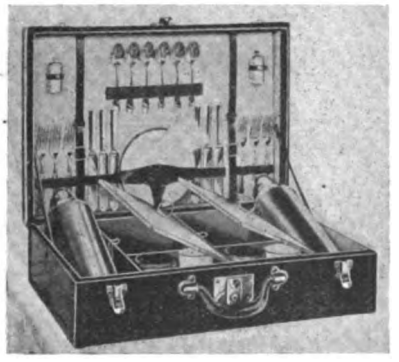
A two-wheel touring trailer, enabling close connection to the motor car, equipped with Behlen Quick-Hitch Universal Draw Bar.



Puckett Anti-Rattler



Behlan Touring Trailer



Knickerbocker Luncheon Suitcase

absorbing shocks and making trailer track with towing vehicle. Axles are 1¼ in., ball bearing, artillery type wheels fitted with 1¼ in. solid rubber tires. Springs are semi-elliptic, five leaf, 1¾ in. wide. Body is flare board, 84 x 42 in. Capacity 800 lbs. Price $150.—Charles Behlen Sons Co., Vine and Fifteen Streets, Cincinnati.

KNICKERBOCKER LUNCHEON SUITCASE

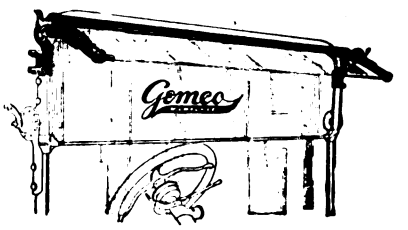
A combined luncheon suitcase in which the entire equipment can be taken out and the case used as an ordinary suitcase. Straps are provided for holding shirts, waists, etc., when so used. Sizes from 9 x 4½ x 15 in. to 28 x 11 x 18 in., furnished either empty or with cutlery, dishes, food boxes, etc., at prices from $3 to $40.—Knickerbocker Case Co., Fulton and Clinton Streets, Chicago.

GEMCO VISORS FOR FORDS

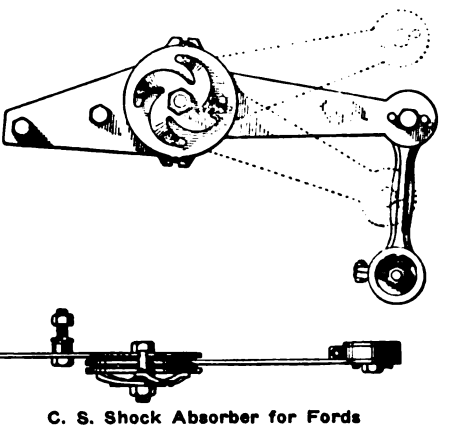
An adjustable visor with a ratchet for quick adjustment to any angle. Made of plate glass with black enamel frame. Model for sedan sells for $10 and one for touring car, attaching to stanchion, sells for $10.50.—Gemco Mfg. Co., Milwaukee.

C. S. SHOCK ABSORBER FOR FORDS

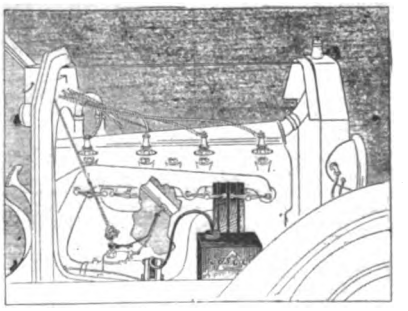
A friction-type shock absorber with adjustable tension for Ford cars. Has a single arm, uses woven asbestos between friction members, is stamped from steel and fastens directly to frame of car. Easily attached and fits all Ford models. Retail price $16 per set of four. Dealer's price $12.—Canton Specialty Co., Canton, Ill.



Gemco Visor for Fords



C. S. Shock Absorber for Fords



Gas-E-Co Economizer

GAS-E-CO ECONOMIZER

A vaporizer, decarbonizer and automatic needle valve control for Fords. The vaporizer is an auxiliary mixing chamber placed between the carbureter flange and the manifold flange, which automatically adjusts itself to the speed of the engine to completely vaporize the gasoline. The decarbonizer is a tank automatically supplying the engine with moisture by drawing it from the tank through a tube to the intake manifold. The needle valve control connects the gas lever on the steering wheel with the needle valve and reduces the consumption of gasoline in proportion to the demands of the engine.—Gasoline Economy Co., Colonial Trust Building, Philadelphia.

TAYLOR MODEL G CRANKSHAFT TIRE PUMP

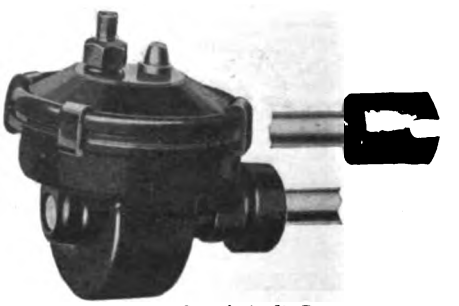
A tire pump operated by the engine crankshaft through a coupling slotted to surround the starting-handle pins. Held in position by a bearing at the crankhandle hole and supported by a spring grip which fastens to the cross member of the frame. Price $7.15 in the East, $7.65 West of the Rockies.—Taylor Mfg. Co., Redford, Mich.

TOOL POCKET FOR FORDS

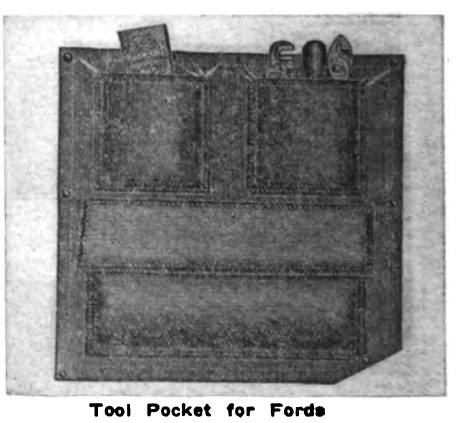
A pocket to fasten to the left front door of the Ford to carry tool bag, tools, maps, etc. Of heavy material and matches other trimmings on the Ford. Fastens with snap buttons or tacks. Price $1.20 with tacks, $1.50 with buttons.—Hodes-Zink Mfg. Co., Fremont, Ohio.

HANDY TOOL CABINET

A three drawer wooden tool cabinet, the drawers of which can be sub-divided by wood



Taylor Crankshaft Pump



Tool Pocket for Fords



Stevens Handy Tool Cabinet

divisions, making spaces of different sizes. Drawers, 2½ x 12 x 18 in., lined with galvanized sheet steel, each drawer provided with two pulls and a card holder. Price $5.—Stevens & Co., 375 Broadway, New York City.

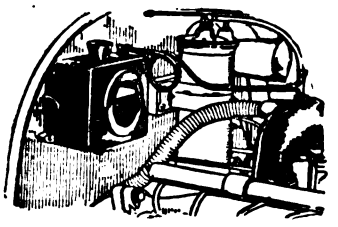
NOBLE'S ENAMEL RENEWER

A cleaner for bodies that have been made dull by washing or exposure to the elements. Contains no inflammable material. Price $1.25 per quart.—Noble Piano Co., 971 Woodward Avenue, Detroit.

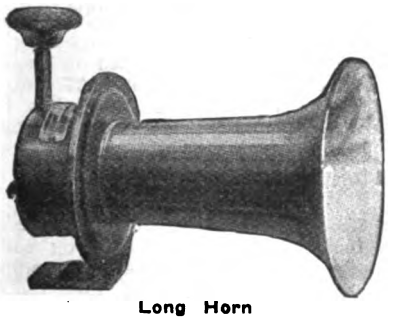
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ESTA WATER AUXILIATOR

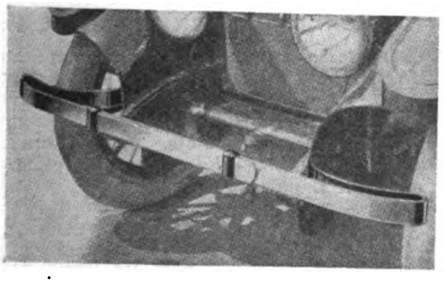
A device for removing carbon from the cylinders by introducing water into the combustion chamber continuously while the engine is running. It consists of a polished aluminum tank, in the top of which is a tunnel-shaped filling-tube which extends down to within a short distance of the bottom, and fitted at its lower end with an annular opening. A flexible copper tube leads from an upper corner of the tank to a hole drilled and tapped in the inlet manifold. When the engine is running, the partial vacuum in the manifold draws air down the filling tube in the form of minute bubbles through the annular opening at its lower end, up through the water and on through the tube to the manifold. Price $15 in the East and $16.50 in Colorado and west thereof.—Esta Co., 103-107 Massachusetts Ave., Boston.



Esta Water Auxiliator



Long Horn



Lyon Resilient Bumper



Crowe Fan Belt for Fords

LONG HORN

A hand-actuated horn with hardened gears, ball and roller bearings and seamless projector and housing, finished in black and nickel, black and brass, or all black. Length 9 in., diameter 5½ in., price $5.—Edward A. Cassidy Co., Inc., Madison Avenue and Fortieth Street, New York.

LYON RESILIENT BUMPER

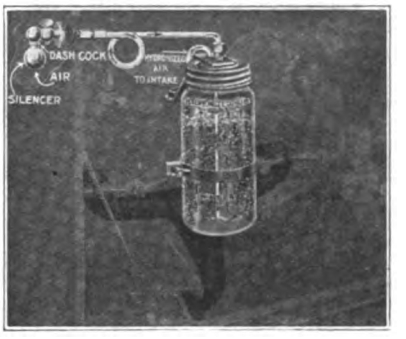
A resilient or spring bumper for attachment to front or rear. Made in sizes for large and medium cars, and special models for Fords, Saxons and Chevrolet four-ninety, and in either black enamel finish with nickel clips or nickel finish with black clips. Prices range from $8.75 to $14.50, depending on size and finish.—Metal Stamping Co., Long Island City, N. Y.

FRIESTEDT HYDRONIZER

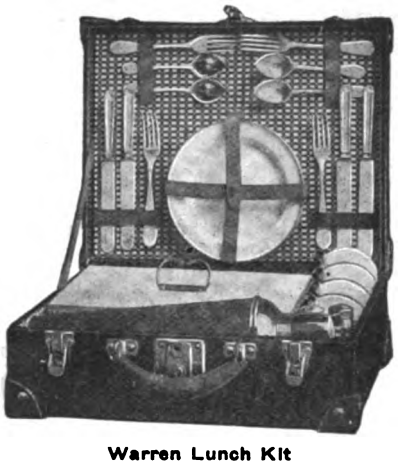
A device for supplying the combustion chamber with a supply of water vapor taken from a jar by means of vacuum. The device is mounted on the exhaust manifold and the vacuum in the intake pipe draws air from the dashcock through the water in the jar. Price $9.—Friestedt Mfg. Co., 2934-2938 West Lake St., Chicago.

LUNCH KITS

Lunch kits in the shape of a suit case so arranged that everything has a place and fits compactly. No. 1725 is fitted for six persons, with knives, forks, spoons, cups, plates, salt and pepper shaker, 16-oz. glass jar, large metal food box with two compartments and space for two 1-qt. vacuum bottles. Size is 21¼ x 15 x 6 in. and is black enamel covered, waterproof, and has washable cover lining. No. 1723 is fitted for four persons and has the same equipment in reduced amount as the first model. Size 15¾ x 12½ x 5½ in. Prices are about $15 and $12 respectively.—Warren Leather Goods Co., Worcester, Mass.



Friestedt Hydronizer



Warren Lunch Kit

CROWE FAN BELTS FOR FORDS

A fan belt for Fords consisting of a steel chain into which blocks of oak-tanned sole leather are firmly embedded. There are three parts to each length so that by sliding out any leather section, the chain opens and is closed when the section is replaced. No metal touches the pulleys. Price $1.25.—Mechanical Belt Co., St. Joseph, Mo.

LIBERTY PLANE

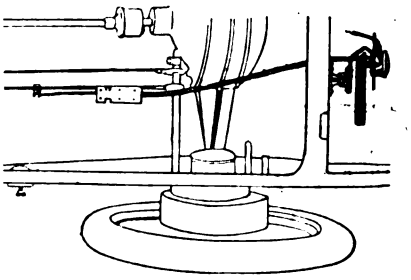
A radiator ornament which is a miniature airplane of cast aluminum, polished and decorated with the flying emblem in red, white and blue. Device is weather-proof and a breeze revolves the fan on the front. Price $1.—Defender Auto Lock Co., Marquette Building, Detroit.

COMER AUTO-STOP SIGNAL

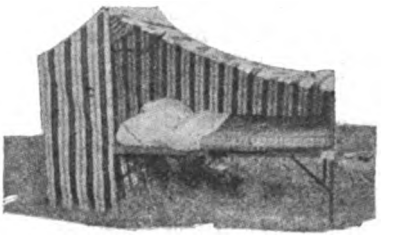
A rear signal device combined with a license number bracket and tail-light so arranged that a signal arm with the word "Stop" rises from a hidden position automatically when the brake pedal is depressed. Connection is made by a flexible cable between the arm of the signal and the brake rod. The signal is illuminated at night when the arm is raised.—Auto Signal Co., Sullivan, Ill.

AUTO-HOME-CAMP-BED

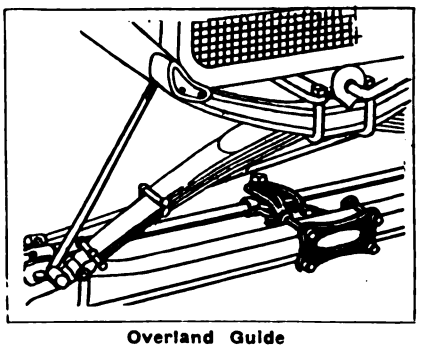
A combined camping bed and tent which can be used as dressing room or for any other purpose desired. The bed is full sized double with Sagless wire springs, oak frame, steel reinforced aluminum joints and the tent is fine woven striped awning. Price $50.—F. G. Musso, San Jose, Cal.



Comer Traffic Signal



Auto-Home-Camp Bed



Overland Guide

OVERLAND GUIDE

A device to assist steering Fords, which clamps around the front axle and has a pivoted arm the end of which clamps on the tie rod. This arm is maintained in a position at right angles to the axle by a spring so that when the wheels are turned one way or the other the tie rod pulls the arm against the spring, which tends to pull the tie rod back to a position where the wheels are pointed straight ahead. Weighs less than 4 lb. and is lubricated by an oil bath, and spring is packed in hard grease and completely inclosed. Price $8.50.—Meixell Co., Merchants Bank Building, Indianapolis.

WOODWORTH RADIATOR CEMENT

A liquid cement to be poured in radiator. Also prevents rust and scale; price 50 cents per can; 40 per cent dealer's discount in one dozen lots.—Woodworth Mfg. Co., Niagara Falls.

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HILL-SMITH MINUTE DEMOUNTABLE WHEEL

A demountable artillery wood wheel for Ford cars which is changed by removing one nut. Outfit consists of extra wheel interchangeable with any Ford wheel, four hubs, hub wrench and one extra flange. Price $30. (Denver and West $35.).—Hill-Smith Metal Goods Co., 82 Brookline Avenue, Boston.

LAZCO SPRING LUBRICATOR

An adjustable spring lubricator that can be fitted to any spring. The side pieces telescope to allow variation of height and they are connected by adjustable bolts for varying width. Lubrication of the spring is by wick action and requires little attention. Set of four for Ford cars sells for $2 and set of 10 for all other cars sells for $5.—Lazarus Mfg. Co., 750-800 Prospect Avenue, Cleveland.

AIR-FRICTION SPARK PLUGS

Constructed with specially made porcelain which is not easily broken, and which resists soot and fouling. Made in ½ in., S.A.E. and metric sizes and in various lengths. Price $1 each, 5 for $3, or 7 for $4.20.—Air-Friction Carburetor Co., Dayton, Ohio.

BRUNNER AIR COMPRESSOR OUTFIT

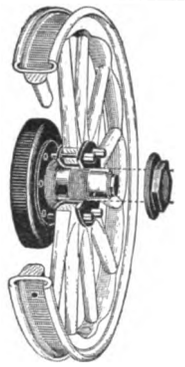
A motor-driven air compressor unit consisting of 32-gal. welded steel tank on saddles with No. 42 Brunner motor-driven air compressor, consisting of two-cylinder air compressor operating at speed of 350 r.p.m., producing 2½ cu. ft. of free air per minute and pressure up to 150 lbs. Compressor is connected by means of pinion and gear to ½ hp. motor. Equipment includes 25 ft. of Brunner "Resistoil" air hose with swivel hose connection and automatic air chuck. Shipping weight 415 lb., length 36 in., width 18 in. and height 34 in. Price $195 for direct-current motor, $210 with alternating-current 60-cycle motor.—Brunner Mfg. Co., Utica, N. Y.

WONDER MINUTE GREASE AND OIL GUN

A grease and oil gun made of two steel tubes telescoping into each other and secured by a tapered grip which locks the shell to the container with a single motion. Grease is loaded in the barrel without use of paddles. Cylinders are 1¼ and 1⅜ in. heavy gage steel and piston provided with two-way chemically treated cup leathers. Spout is ⅛-in. tubing fitted with reducer for oil. Finish in nickel. Capacity 8 oz., weight 1½ lb., price $2.50.—Sidel-Rattner Mfg. Co., 31-35 Broadway, Brooklyn, N. Y.



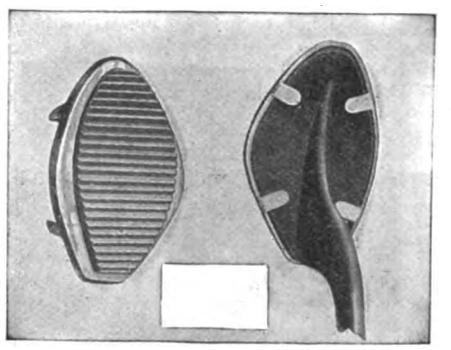
Ajax Touring Refrigerator



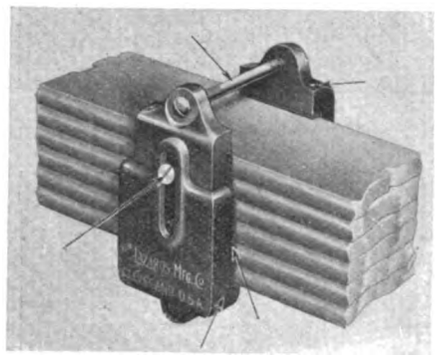
Hill-Smith Demountable Wheel



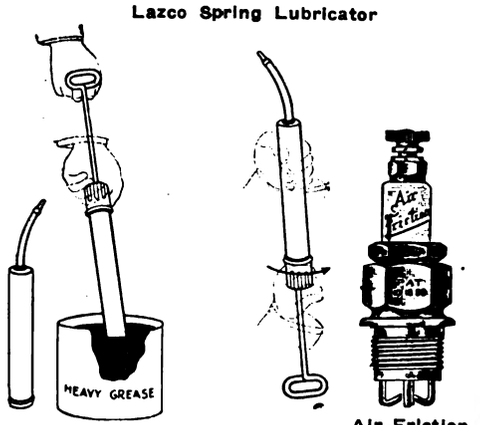
Auburn Plug



Perfection Pedal Pads

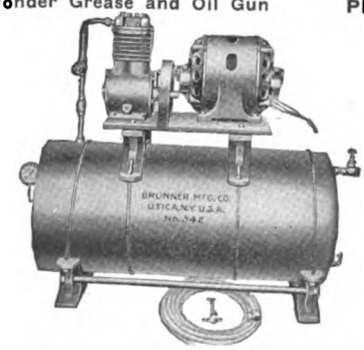


Lazco Spring Lubricator



Wonder Grease and Oil Gun

Air-Friction Plug



Brunner Air Compressor

AUBURN SPARK PLUGS

A plug made in all sizes and threads with heavy central electrode. Porcelain plugs 75 cents and $1 and mica plugs $1 and $1.25.—New York Mica & Mfg. Co., Auburn, N. Y.

PERFECTION PEDAL PADS

Pedal pads of molded solid rubber secured in cold-rolled steel frames which are attached by metal prongs folding around the back of the pedal. Frame is nickeled and upper surface of rubber corrugated. Made in over 28 stock sizes at prices from $1 to $1.50.—Auto Pedal Pad Co., Inc., 794 Seventh Avenue, New York City.

AJAX TOURING REFRIGERATOR

A refrigerator made in trunk form which contains three compartments, two for food or bottled goods, and a threaded ice compartment to prevent leakage of water. Price $20.—Ajax Trunk & Sample Case Co., 144-150 West Eighteenth Street, New York.

WOODWORTH CARBON CLEAR

A liquid carbon remover to be dissolved in the gasoline, one teaspoonful to 5 gal. Price $1 per tube, containing sufficient to treat 250 gal. of gasoline. Dealer's discount of 40 per cent on one dozen tubes.—Woodworth Mfg. Corp., Niagara Falls.

WAXIT BODY POLISH

A liquid wax polish to clean and polish in one operation. Can be used on linoleum, leather, etc. Six ounce bottle 35 cents, 14 ounce 60 cents, quart, $1, half gallon $1.75, gallon $3.—Waxit Mfg. Co., Old Colony Building, Chicago.

WHIZ STOP LEAK

A liquid radiator cement to be placed in the cooling system, hardening on contact with the air through a leak. Half-pints 75 cents.—R. M. Hollingshead Co., Camden, N. J.

ELGIN TIRE RACK BRACKETS

Iron brackets which fit over iron pipe and form brackets to which wooden slats are attached. Any number of length of shelves can be made by varying the length of pipe and the length of the slots. Price of brackets $12 per dozen.—Elgin Motor Power Mfg. Co., Cedar Rapids, Iowa.

GOLDEN GIANT SPARK PLUG

A spark plug which gets its name from its proportions and from the fact that shell is plated with 24 karat gold. Has large blue adamant insulator, with asbestos gaskets and a "wave side" electrode, claimed to give better flame propagation. Electrodes are pure nickel.—Benford Mfg. Co., Mt. Vernon, N. Y.



Elgin Tire Rack Brackets



Golden Giant Plug

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NU-EX FIRE EXTINGUISHER

A fire extinguisher which discharges the liquid Nuexolene by compressed air and will throw a stream 30 ft. The liquid is released by turning a valve. This liquid will not freeze and forms a gas blanket to smother the flames. Extinguisher is 15 in. high, weighs 10 lb. and sells for $10.—Nu-Ex Fire Appliance Co., Columbus, Ohio.

ELGIN PEERLESS PINK POLISH

A pink emulsion that will not separate and will remove dirt, dust and blemishes. Quarts $1; half gallons $1.50; gallons $2.50.—Elgin Motor Power Mfg. Co., Cedar Rapids, Iowa.

BETHLEHEM SPARK PLUG

A spark plug with porcelain insulator, heavy central electrode, the ground electrodes varying in the different models. Made in all sizes and threads and prices from 75 cents to $1.50. Spark plugs with mica insulators are also made, price $1. Any type terminal furnished on any size or style of plug.—Silvex Co., South Bethlehem, Pa.

GEMCO RAIN VISION VENTILATING WINDSHIELDS FOR FORDS

A windshield for Fords in which the upper and lower glass can be set in any position. Weight 33½ lb.—Gemco Mfg. Co., Milwaukee.

C-W BLOWOUT PATCH

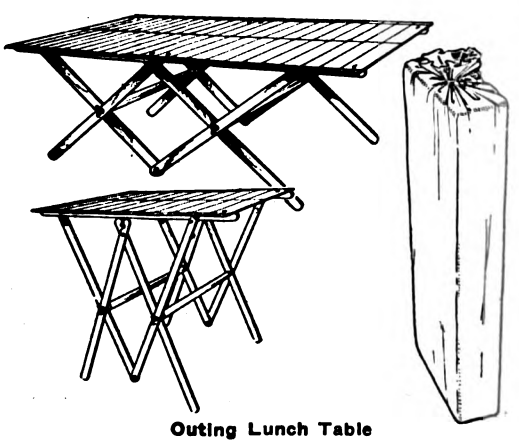
A heavy flexible blowout patch or boot made from Sea Island cotton fabric containing five to eight plies, according to size. Edges are beveled and flaps are on sides to hold boot in place. Made in sizes from 3 to 5 in. at prices ranging from 50 cents to $1.50. —Cord-Wyckoff Tire & Rubber Co., 414 Douglass Street, Sioux City, Iowa.

OUTING LUNCH TABLE

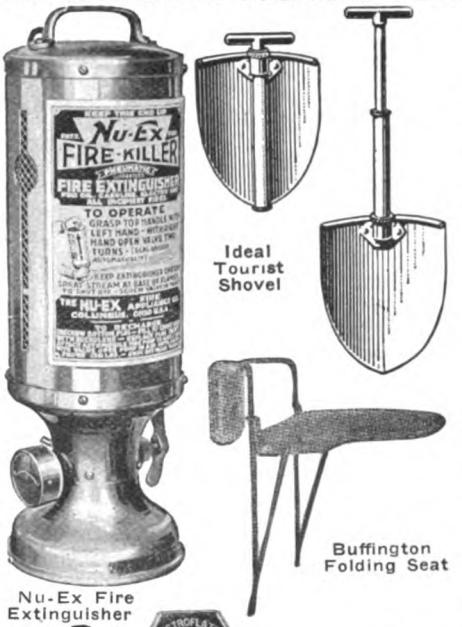
A folding table 2 ft. x 4 ft. x 18 in. high that can be stowed away in a package 4 x 6 x 25 in. It can also be made into a table 2 ft. square and 25 in. high. Weighs 7 lb., made of wood and has no exposed metal parts. Price $4.—Puffer-Hubbard Mfg. Co., Minneapolis.

OXYGEN TANK TRUCK

Truck consists of a pair of wheels on short axle with a steel strap contracted on oxygen tank by bolt and wing nut. Handle is a steel strap with bolt and wing nut, and iron handles welded on. Price per set of truck and handles $6.50.—Auto Repair and Storage Battery Works, 41 Union Street, Portland, Me.



Outing Lunch Table



Nu-Ex Fire Extinguisher

Ideal Tourist Shovel

Buffington Folding Seat



Bethlehem Plug



Garage Lectroflater



Gemco Windshield for Fords



Oxygen Tank Truck

IDEAL TOURIST SHOVEL

All steel telescoping shovel with nickel finish. Telescope is in two parts so that full length, or half length can be used or it can be folded up altogether. Blade is 6¾ x 8½ in., length of handle 16 in., weight 2 lb. Retail price $2.50, dealers' price $1.50.—Ideal Mfg. Co., Kansas City, Mo.

NOBLE'S MOHAIR TOP DRESSING

A stain for faded mohair tops containing no inflammable material. Price $1.25 per quart.—Noble Piano Co., 971 Woodward Avenue, Detroit.

BUFFINGTON FOLDING SEAT

A folding seat held in position by hanging it over the door and which can be folded and carried on the door or laid on the floor of the car. The side which comes against the outside of door is upholstered and the top of frame is wrapped with leather. Metal parts are ⅜-in. polished steel, japan finish, and seats are three-ply veneer ½ in. thick, 11 x 11 in., upholstered with imitation black leather.—C. A. Buffington & Co., Berkshire, N. Y.

ELGIN MAGIC RUBBER BACK PATCH

Patching material put up in sections containing 48 sq. in. which can be cut to proper size and cured to tube with gasoline and cement. Put up in cans. Price 75 cents.—Elgin Motor Power Mfg. Co., Cedar Rapids, Iowa.

NO. 2 GARAGE LECTROFLATER

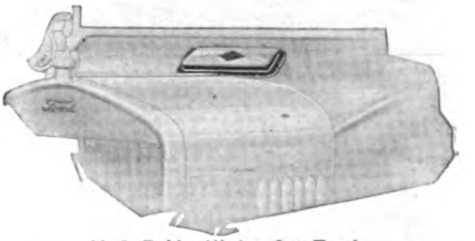
An electric motor driven air compressor mounted on three-wheel carriage for public garage use. Has a capacity of 1¾ cu. ft. free air per minute, maximum pressure of 150 lbs., bore 1¾ in., stroke 2 in., requires 400 watts and 100 lbs., and weighs 70 lbs. Furnished with 20 ft. hose and 15 ft. electric cord. Price $110 for 110 volt, $114 for 32 and 220 volt.—Black & Decker Mfg. Co., 109-115 S. Calvert St., Baltimore.

H & D VENTILATOR FOR FORD CARS

A hinged ventilator to be inserted in the Ford cowl. Vent can be opened to any one of eight positions. Size of opening is 8½ x 3¼ in. Price $2.50.—H & D Co., Goodland, Ind.

GRINNELL STYLE 4446 DRIVING GAUNTLETS

Driving gaunlets of velvet coltskin either with or without ventilated feature. Also made in khaki, gray or black horsehide. Price $5.—Morrison-Ricker Mfg. Co., Grinnell, Iowa.

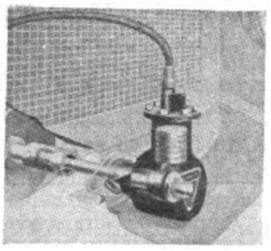


H & D Ventilator for Fords

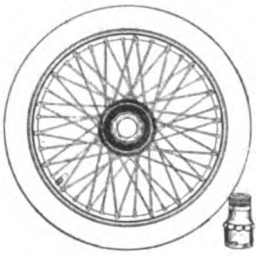


Grinnell Driving Gauntlets

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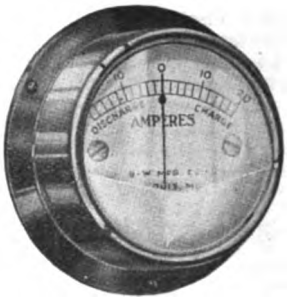
Detroit Engine-Driven Pump



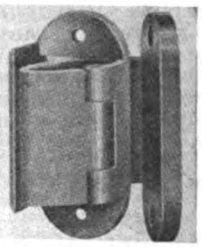
House Wire Wheels for Fords



Shurnuff Manifold for Fords



B-W Ammeter



Hubbard Concealed Hinge

DETROIT ENGINE-DRIVEN TIRE PUMP

A detachable engine-driven tire pump which attaches to engine crankshaft in place of hand crank. Pump is carried in tool box, and when needed can be slipped in place and locked with thumb screw in half a minute. Pistons, crankshaft and cylinder are ground to close limits and piston has double ring grooves and six special compression rings. Both inlet and outlet valves are in the head and easily accessible. Lubrication is by hard graphite grease in the crankcase. Furnished complete with 14 ft. steam type rubber hose. Price $12.—Detroit Accessories Corp., Detroit.

HOUSE TYPE WIRE WHEELS FOR FORDS

Quick change wire wheels for Fords, a set consisting of five wheels, four inner hubs, hub caps and all necessary equipment for installation. Dust cover for spare wheel, hub-cap wrench and spoke-nipple wrench are also furnished. A mechanical locking latch locks the hub-cap to the inner hub, the latch releasing when the wrench is applied to the hub, and automatically locking again when the wrench is removed. May be had in black, white or red enamel. Price $60.—Wire Wheel Corp. of America, 1700 Elmwood Avenue, Buffalo.

SHURNUFF MANIFOLD FOR FORDS

A combined intake and exhaust manifold for Fords in which the two manifolds are in one casting to allow the exhaust to pass over the intake. Attached in less than an hour without machine work. Complete with all necessary gaskets, packed in wooden box, $9.—Shurnuff Mfg. Co., St. Louis.

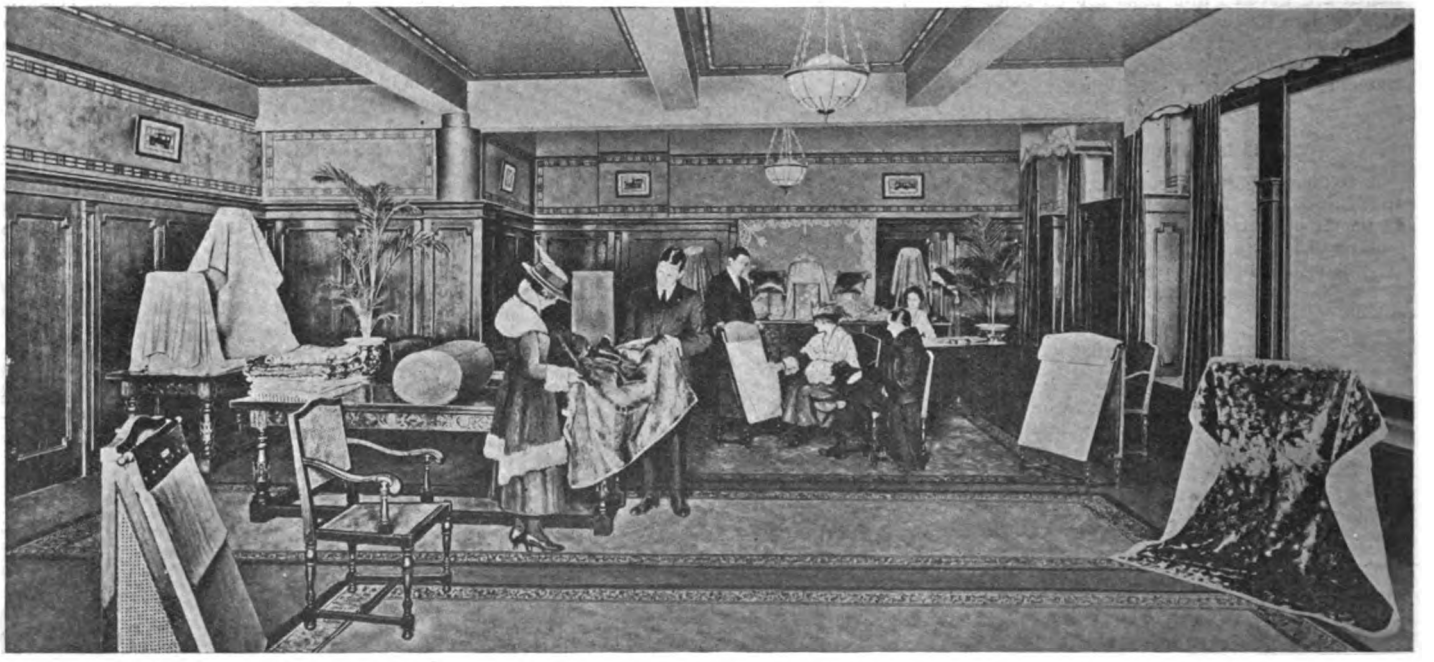
B-W DIRECT-CURRENT AMMETERS

Made in flush type bright nickel finish or surface type black rubberoid finish. Cases of drawn brass, the glass being held in place with special cement. Flush type meter will mount in a 2-in. hole. Furnished in 10-0-10, 15-0-15, 20-0-20 and 30-0-30 scales. Price of all models $1.90.—Ballman-Whitten Mfg. Co., 4440 Olive St., St. Louis.

HUBBARD CONCEALED HINGE

A concealed door hinge made of two parts and a pin, the female portion going on the jam and having an oblong slot and extensions forming the pin barrel. The male portion has a long tongue which is bent around inside the oblong slot in the female part, the end of the tongue forming the balance of the pin barrel.—Smith & Hubbard, Ashtabula, Ohio.

How to Touch the Fashionable Woman's Bankroll



The Laidlaw Co., New York, a maker of automobile upholstery and interior fittings, realizes a good percentage of its profits every year by appealing to the fashionable tastes of women, and is endeavoring to extend the use of the ideas

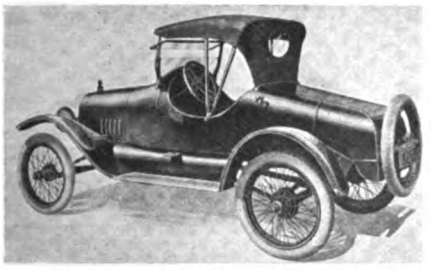
On the second floor of the Laidlaw building, all of which is occupied by this company, is a room about 30 x 50, in which automobile upholstery and fittings are displayed. The room is fitted up with rugs and appropriate furniture, as is shown in the accompanying illustration. The room is panelled in mahogany and the furniture is mahogany.

If a woman comes in and says she wishes a car finished in blue a sample of the color of the car is laid upon an easel such as is shown in the foreground, and the various samples are matched against the color of the car until she finds exactly the color she wishes.

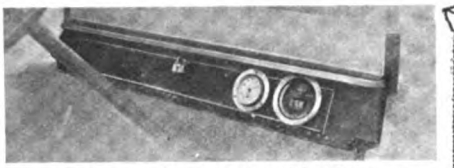
Oftentimes a woman wishes a car trimmed to harmonize with her clothes. In that case she is surrounded with upholstery and fittings of the colors that match her dress and she is enabled to discriminate until she finds just exactly what she wants. This appeal to feminine taste has done a great deal to build up the Laidlaw business to its present large proportions.

On account of the war many owners are having their cars reupholstered and refinished instead of buying new cars. This opens up a large field for new kind of work, and the Laidlaw company is working out a plan for co-operating with dealers. Samples of upholstery are supplied in book form to dealers, they are shown how to utilize these in making the color of the car and the color of the upholstery harmonize to fit the taste of the women.

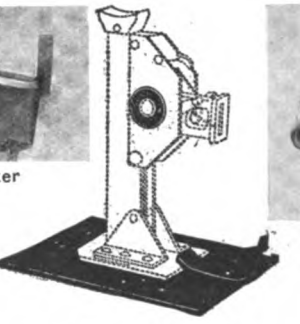
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Lamco Body for Fords



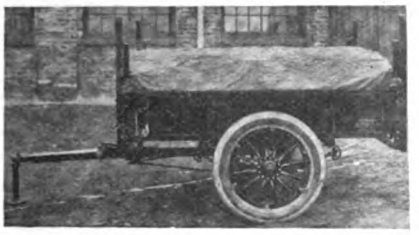
Cutler Service Board and Locker



Base for Lane's Jack



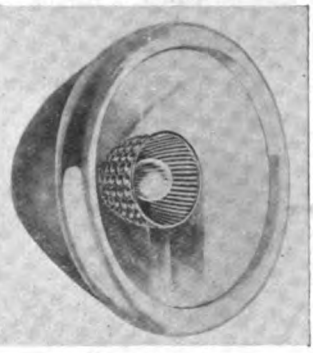
Arrow Grip Chain



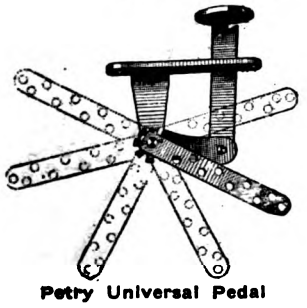
Warner Trailer



Berry Rim Expander



Stewart Lens



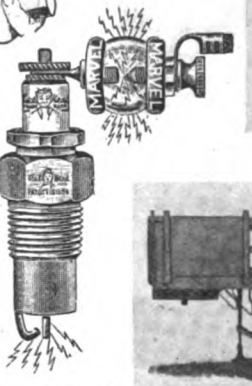
Petry Universal Pedal



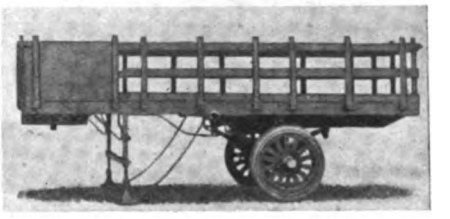
Berry Crank Holder



Crank Release for Ford



Marvel Spark Intensifier



Fruehauf Semi-Trailer

FRUEHAUF SEMI-TRAILERS

Semi-trailers built in 4, 6, 8 and 10-ton capacity. All bearings are Timken, wheels are of artillery type fitted with solid tires, semi-elliptic springs and bodies of different styles for different purposes. Martin-Rocking fifth wheel is used and Fruehauf trailer jack supports front end of trailer when tractor or truck is not supporting it.—Fruehauf Trailer Co., Detroit.

BERRY CRANK HOLDER

A bar with ends bent and drilled to fit under nuts of radiator bolts. License plate holders are attached to bar and a V-shaped loop held by a spring holds the crank in vertical position. Easily attached without machine work.—Berry's Garage, Gray, Maine.

ARROW GRIP CHAINS

Tire chains for trucks having cross chains of welded steel which go around the tire to hooks on each side of a clamp which is bolted around every other spoke. The clamps are lined to protect the spokes and a hinged catch drops down between the end links of the chain, preventing the chains from becoming detached. Chains can be attached or detached without jacking up wheels. The grip remains permanently attached to the spokes.—Arrow Grip Mfg. Corp., Inc., Glens Falls, N. Y.

LAMCO BODIES FOR FORDS

Sport model bodies for Fords in two-passenger style with long sloping rear deck and stream line hood. The body disguises the original car completely with the exception of the axles, radiator gills and crank handle. Made of 20-gage steel on wood frames, upholstered in artificial leather, deep, soft removable cushions and linoleum covered floor boards. Top is one man type mohair with side curtains, windshield, two-piece ventilating, full rain vision type, hard rubber and nickel finish. Prices $95 to $165, depending on completeness of equipment.—Lehman Mfg. Co., Cannelton, Ind.

WARNER TOURIST TRAILER

A two-wheeled pneumatic tired trailer, containing complete camping equipment which includes 7 x 14 ft. 10 ounce double filled army duck tent, two double folding Pullman beds with springs and mattresses, mahogany finished folding table, folding camp grid, ice chest, water-proof cover, etc. Trailer has roller bearing wheels, ball and socket hitch connection. Made in two models, T-40, 1500 lb. capacity, $235, and model T-41, capacity 2500 lb., $325.—Warner Mfg. Co., Beloit, Wis.

BERRY DEMOUNTABLE RIM EXPANDER

A demountable rim expander and contractor consisting of two bars and a split bar with turnbuckle forming a triangle to fit inside rim. Hooks attaching to expander pull the rim to contract it and a chisel point expands the rim. Folds compactly for carrying and weighs 6¾ lb. Price $5.—Berry's Garage, Gray, Maine.

CUTLER SERVICE BOARD AND LOCKER FOR FORDS

A combined service board and tool locker to go in the cowl dash of the Ford. Can be attached or detached in a moment as it hangs on the two rear bolt nuts of the door and is held in place by strong, steel springs. Door or locker can be removed without interfering with the electric system. Price $6.50 to $20, depending on style. Also made in larger sizes for other cars.—Cutler Combination Service Board and Locker, 1722 Market Street, San Francisco.

MARVEL SPARK PLUG INTENSIFIER

A spark gap contained in a glass globe between two terminals one of which goes on plug and the other on high tension wire. Spark is visible and gap is adjustable. Price 35 cents. A 10 by 13 in. display easel with twelve gaps mounted is supplied to jobbers and dealers.—William Simpson, 603 Insurance Exchange Bldg., Chicago.

SUPPLEMENTAL BASE FOR LANE'S JACK

A supplemental base to increase the area of a jack base when using it in soft ground. To attach for use, jack is placed in position on the supplemental base and clamped by turning a button. Made in one size for Lane jacks only. Price 50 cents.—Lane Brothers Co., Poughkeepsie, N. Y.

STEWART LENS

A glass diffusing lens of open end bell shape, surrounding the bulb so that one size fits all headlamps; designed to throw light to the sides of the road without glare. Easily installed, price $2 per pair—Stewart-Warner Speedometer Corp., 1826-52 Diversey Blvd., Chicago.

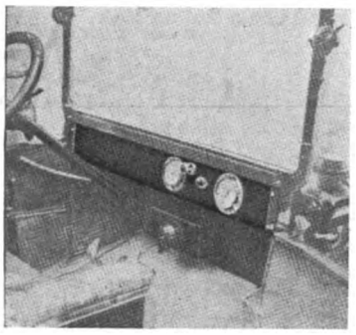
PETRY UNIVERSAL PEDAL

A universal pedal for muffler cutouts, accelerators, exhaust whistles, heater valves, etc. Can be used either to pull or push Made of high grade steel, gun barrel finish. Price 75 cents.—N. A. Petry Co., Inc., 1307 Race Street, Philadelphia.

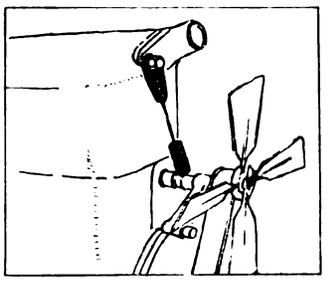
CRANK RELEASE FOR FORDS

A crank release for Ford cars consisting of a ratchet on the crank handle and a pawl attached to the front engine bearing, this pawl engaging with the gear and disengaging the crank if there is any backward movement. Price $5.—Alta Co., 417 Market Street, San Francisco.

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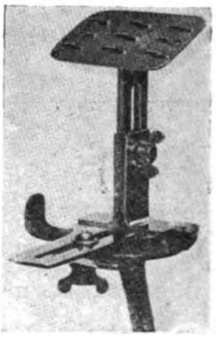
W-A Instrument Board



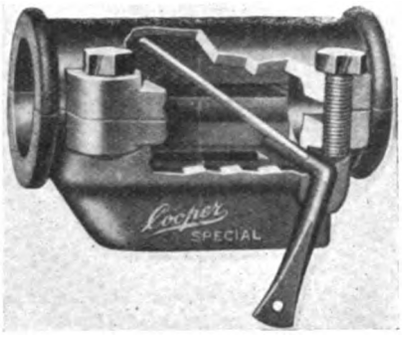
Swan Fan Belt Adjuster



W-A Delivery Body



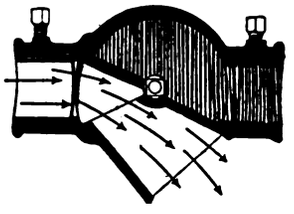
Universal Extension Pedal



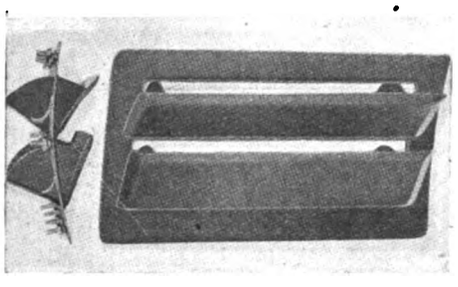
Cooper Cutout



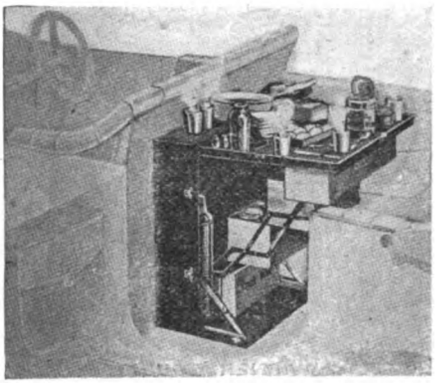
Evergood Windshield Mirrors



Petry Cutout



Petry Cowl Ventilator



Pullman Luncheon Case



Stewart Speedometer

PETRY VENTILATOR FOR FORDS

A cowl ventilator with shutters which can be opened or closed from the driver's seat. Rain-proof, dust-proof, throws air on the floor and does not rattle. Price $3.—N. A. Petry Co., Inc., 1307 Race St., Philadelphia.

SWAN FAN BELT ADJUSTER

A coil spring and convenient fixture connecting the fan bracket to a stationary part of the engine so that the fan pulley is held up by the spring tension to keep the belt tight. Price 35 cents.—Mechanical Belt Co., St. Joseph, Mo.

UNIVERSAL EXTENSION PEDAL

An extension pedal for clutch and brake which is attached with a sliding clamp. Fits all makes of pedals and sells for $4 per set of two or $5 if fitted with rubber cushion. —Rich Mfg. Co., 1777 Broadway, New York City.

STEWART SPEEDOMETERS

Speedometers of magnetic type with season register and a tripodometer which can be easily reset without changing season record. Warner autometer from $50 to $200, and Stewart speedometers $10.75 to $25. Ford model $10.75.—Stewart-Warner Speedometer Corp., 1826-52 Diversey Blvd., Chicago.

W-A DELIVERY BODIES FOR FORDS

A delivery body replacing the rear deck on Ford roadster. Of flare-board type, 52 in. long, 34 in. wide, 10 in. sides and 6 in. flare-boards. Has four inside braces and two outside braces. . Drop-end gate is edge ironed heavily and has full length hinge. Finished in black varnish and furnished with bolts for attaching, $15.—J. W. Whetstone Co., Lapeer, Mich.

PULLMAN DINER LUNCHEON CASE

A combined luncheon case and table, sizes from 9 x 4½ x 15 in. to 28 x 11 x 18 in., furnished either empty or with dishes, cutlery, food boxes, etc., at prices from $3 to $40.—Knickerbocker Case Co., Fulton and Clinton Streets, Chicago.

COOPER SPECIAL MUFFLER CUT-OUT

A cut-out with each half of valve ground to a gas-tight fit and with pipe opening reamed to pipe size and halves clamped together with lockwashered bolts. Flapper valve seat is machined flat to fit valve, and strong flexible spring holds valve in its seat. Flapper valve is placed in an inclined position in the exhaust pipe, shutting off the gas from the muffler and deflecting it downward through an opening more than twice the area of the exhaust pipe. When not in operation, the ground valve prevents any gas going through this opening. Made in sizes for pipe 1½ to 2½ in., prices $2.25 to $3.75 for valve only, or $2.50 to $4.50 with pedals, which are of two styles.—Cooper Mfg. Co., Marshalltown, Iowa.

W-A INSTRUMENT BOARD FOR FORDS

An instrument board for Fords with good center covered with imitation leather and with two metal brackets to attach. Brackets fit under nuts on windshield bracket. Also furnished in mahogany without leather. Price $1.50.—J. H. Whetstone Co., Lapeer, Mich.

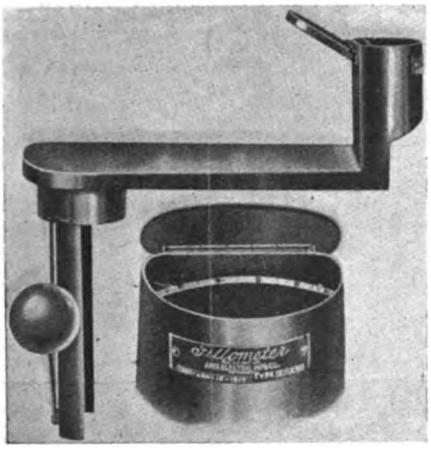
PETRY CUTOUT

A cutout in which the valve completely cuts off the muffler pipe when the cutout is being used and the shape of the orifice accentuates the explosions. Has a flexible spring, big leverage and large vent. Control lever can be placed in any of seven positions on valve shaft. Made in sizes for exhaust pipes with outside diameters of 1½ to 3¼ in., at prices from $4 to $6. Model for Ford car complete with chain and pedal $4. N. A. Petry Co., 1307 Race St., Philadelphia.

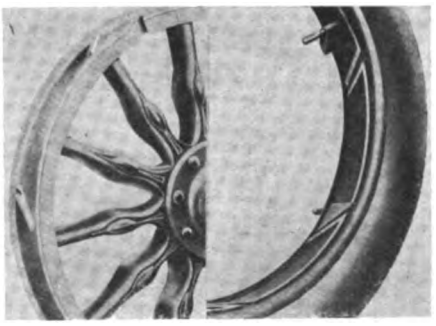
EVERGOOD WINDSHIELD MIRRORS

Windshield mirrors made in round diminishing type 90 cents to $2, French round beveled type $1.80 to $2, oval $2 to $2.20, and rectangular $2 to $2.20. Also made in DeLuxe model, price $5.—Emil Grossman Mfg. Corp., Brooklyn, N. Y.

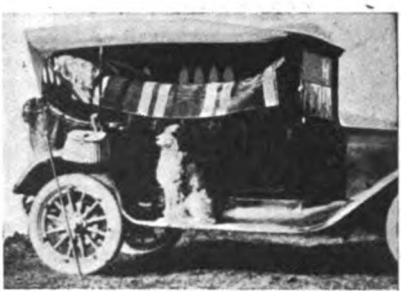
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Fillometer for Fords



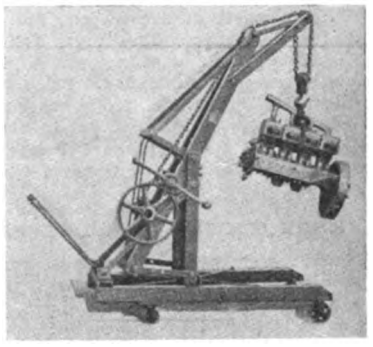
Edstrom Demountable Rim



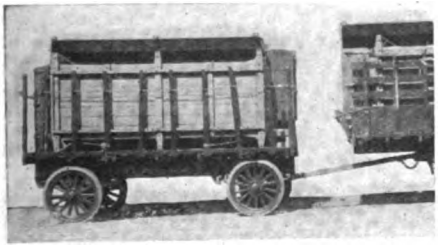
McMillin Bed



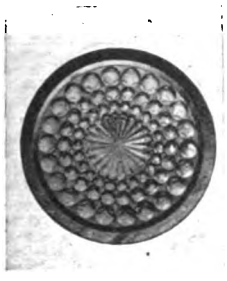
Whetstone Trailer



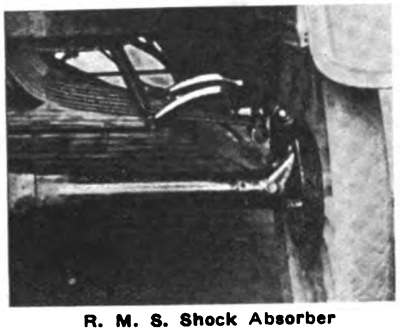
Manley Utility Crane



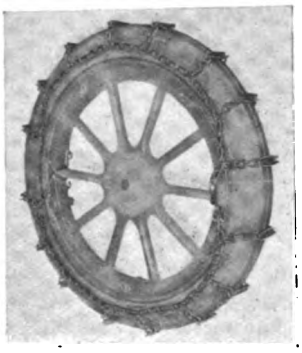
Trailmobile Trailer



Warner Lens



R. M. S. Shock Absorber



Union Tire Chain



Vesta Sidelamps

FILLOMETER FOR FORDS

A combined extension filler for gasoline tank and gasoline gage. The filler is flat and extends out under the cushion so that tank can be filled without raising cushion. A cork gage in the tank indicates in the extended filler opening the contents of the tank. Made of rust-proofed steel, price $2.25. —Apex Electric Mfg. Co., 1410 West Fifty-ninth Street, Chicago.

EDSTROM DEMOUNTABLE RIM

A demountable rim in which the tire rim has diagonal grooves and the wheel has diagonal tongues to fit these grooves, being locked in place by two set screws which are not removed but only loosened to remove the rim.—Edstrom Rapid Demountable Rim Co., 767-768 Phelan Bldg., San Francisco.

WARNER LENS

A headlight lens to remove glare and diffuse light to both sides of the road and well ahead of car. Price $3.50 to $5 per pair, according to size.—Warner Lens Co., 914 So. Michigan Ave., Chicago.

MANLEY GENERAL UTILITY CRANE

A crane which by slight adjustment of its members can be used as a wrecking crane, portable floor crane, and a general purpose winch. There are four parts, the saddle and anchor piece with two side braces, the crane beam with complete hoist mechanism and chain, top extension assembly and base. As a floor crane, base length is 66 in., width 36 in., height of lift 7 ft., weight 465 lb. As a wrecking crane, length 78 in., anchor piece in saddle foot 36 in., weight 355 lb. List prices range from $74 to $135 depending on lift; dealers prices from $50.20 to $108.—United Engine & Mfg. Co., Hanover, Pa.

VESTA SIDE LAMPS

Lamps to provide side illumination so that the outline of the car can be told at night from the position of the lamps. The projecting opalescent bowl illuminates the side as well as to the front of the car can be fitted to curvature of the car body by sawing the tube to the correct angle. Diameter 3 in., price $5 per pair. Also made with bolt at back to fit Ford side lamp bracket, price $3 and $3.75 for semaphore or opalescent bowl.—Vesta Accumulator Co., 2100 Indiana Ave., Chicago.

R. M. S. SHOCK ABSORBER

A shock absorber of double cantilever type replacing spring shackle on Ford cars. The extended arm of the device is suspended by coiled springs. Price $8 per set of four.—Right Motor Specialties Co., 1326 Michigan Avenue, Chicago.

TRAILMOBILE TRAILERS

Four-wheel trailers of 1½-ton capacity with roller-bearing axles, truck type springs, steel frame with cast steel spring hangers compressed spring drawbar. Drawbar pull is taken from the axle. Artillery type wheels are fitted with solid rubber tires.—Trailmobile Co., 538-550 E. Fifth St., Cincinnati.

McMILLAN BED

A spring bed for camping which is placed over the backs of seats and provides room for two persons. Weighs 13 lb. and rolls into a bundle 2 ft. long by 4 in. diameter. Price $10 for model to fit Fords, Chevrolet "490" and Baby Overlands, $12.50 for models to fit Dodge, Buick, Overland, Studebaker, Maywell; $15 for seven-passenger cars.—Auto Bed Co., Bellingham, Wash.

WHETSTONE CAMP TRAILER

A 1250-lb capacity trailer equipped with 10-oz. duck tent, 11 x 7 ft., accommodating four persons. Body of trailer 46 x 84 x 10 in., semi-elliptic six-plate springs, artillery wheels, 30 x 2 in., pneumatic tires. Price $155.—J. H. Whetstone & Co., Lapeer, Mich.

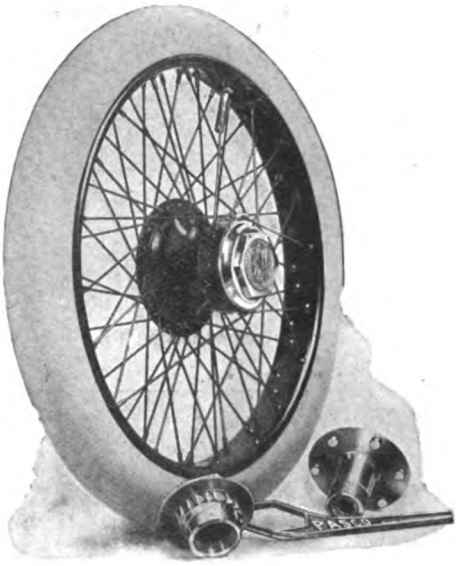
UNION TIRE CHAINS

Tire chains made in two sections so that they may be applied without the use of jacks. Have cup-shaped traction plates made of special steel that will not flatten nor break, and which fit the tire smoothly, have patented hook and are easily applied and detached. Made in sizes from 28 x 2½ to 40 x 6 in. at prices from $3.50 to $15 per pair. Extra plates ready to attach 10 to 20 cents each. Trade discount to dealers.—Union Chain Co., 112 N. Fourth Street, Minneapolis.

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PASCO WIRE WHEELS

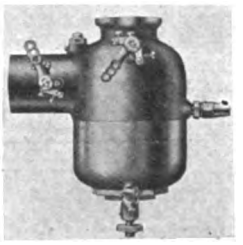
Wire wheels for Fords and other cars with spoke lacing in which each spoke crosses four others in both front and back rows. Hub caps are white metal castings and wheels are so laced that all nipple heads on the spokes come under tire beads, preventing tubes being scratched by spoke heads. Valve hole is placed where the largest air chuck can be used without interfering with spokes. A locking device prevents wheel from loosening while in motion. Wheels furnished complete with four inner hubs permanently fixed on car axles. To make change, release safety lock, unscrew hub cap, slip off wheel, put on spare wheel and replace cap. Set consists of five wheels, four inner hubs, four hub caps, dust cover for spare wheel, name plate and wrenches. With Ford wheels bearings are included. Price $75 for Ford set in black enamel, $80 in other standard colors, $100 for Maxwell set in black or white, $105 in other standard colors.—National Wheel Works, Inc., Geneva, N. Y.



Pasco Wire Wheels

KNOX MODEL F CARBURETER

A carbureter with a floating atomizing valve which operates in unison with the engine speed and automatically handles the fuel as it is passed by the metering needle. It has 20 independent jets which are swept by the full volume of incoming air. Condensed fuel when idling is returned to the bowl. There is only one moving part, and, when once adjusted, needs no attention, as altitude, weather, engine speed or load do not affect the carbureter. Sizes and prices are No. 1 (1 in.), $18; No. 2 (1¼ in.), $20; No. 3 (1½ in.), $23; No. 4 (2 in.), $33. Steering post or dash controls and warm air housings extra.—Camden-Anchor Rockland Machine Co., Camden, Me.


Knox Carbureter

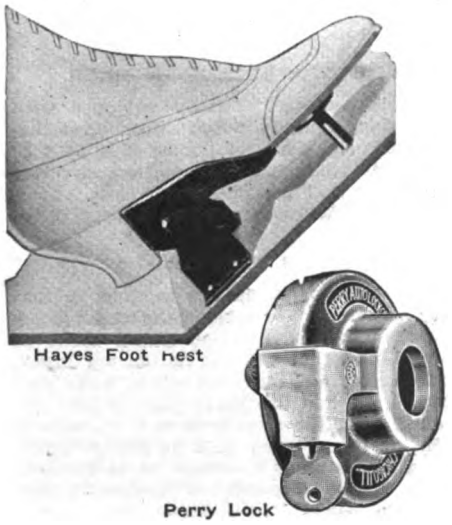
SHALER ROADLIGHTER

A prismatic headlight lens with prisms so arranged that the light is divided into three distinct beams, a long, narrow distance beam and two concentrated beams which light up the sides of the road and signs. Ford size $2.75, larger sizes $3.50. Dealers' display fixtures furnished.—C. A. Shaler Co., Waupun, Wis.


Shaler Roadlighter

HAYES FOOT REST

A two-piece accelerator foot rest with one piece bolted to floorboard and the other piece on which the driver's foot rests pivoted on the lower piece. Made in different heights for different cars, easily and quickly installed. Price $1.—Onguard Auto Necessities Co., Detroit.

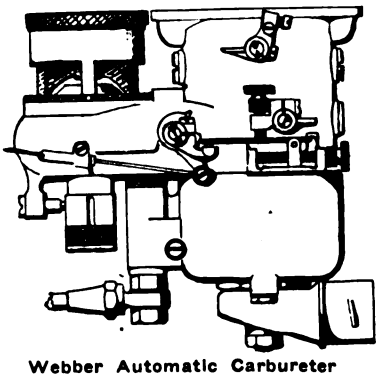

Hayes Foot Rest

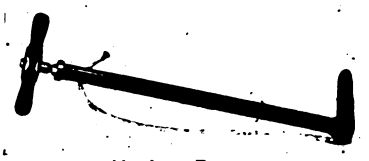
Perry Lock


Kant-Mis Plug



Adamson 5-Minute Vulcanizer


Webber Automatic Carbureter


Harlem Pump

PERRY LOCK STEERING WHEEL

This comprises an entire new steering wheel into which is built a lock. Wheel is 18 in. in diameter with polished aluminum spider. The central locking hub, which is keyed to the steering column, is a duplicate of the old steering wheel. When in locked position the wheel will turn freely without moving the wheels. For Fords and other cars. Price $15.—Perry Auto Lock Co., 2210-2214 South Michigan Avenue, Chicago.

KANT-MIS SPARK PLUG

A plug with one of the electrodes a ground bar with three sparking places paralleling the wire electrode. An individual rotation of sparks is claimed for the three points, similar to an electric brush. Price $1.25.—Kant-Mis Spark Plug Co., Green Bay, Wis.

ADAMSON 5-MIN. VULCANIZER

This model E outfit is a dry fuel vulcanizer for repairing tube punctures. Consists of a C-clamp which clamps the heating arrangement to the tube.—Adamson Mfg. Co., East Palestine, Ohio.

NIEHOFF DEFECTOMETER

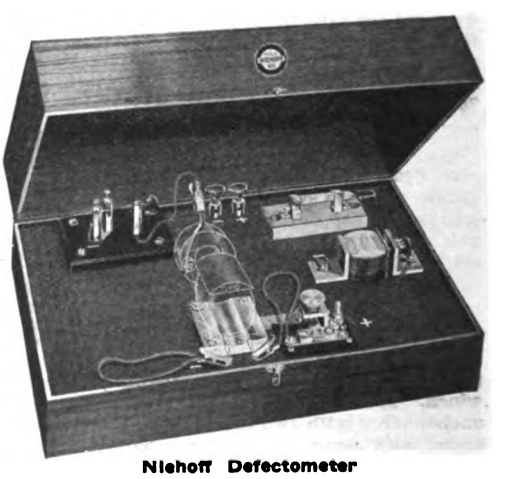
A testing device to locate magneto troubles. Can be connected with 6-volt storage battery and determines condenser, armature and collector defects. Case 15 7/16 x 10¾ x 5 in., mahogany finish, price $25.—Paul G. Niehoff & Co., 232-242 East Ohio Street, Chicago.

WEBBER AUTOMATIC CARBURETER

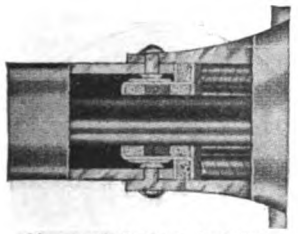
A carbureter with an automatic feature of supplying the engine with the most efficient ratio of gasoline and air at all engine speeds. The auxiliary air and finely divided particles of gasoline are thoroughly mingled before the mixture leaves the carbureter. A cam movement raises the fuel needle for starting, still allowing a flow of air in the venturi to pick up the gasoline and carry it to the cylinders. This starting cam is controlled from the dash. Sizes and prices are: 1-in., $25; 1¼ in., $30; 1½ in., $35; 1¾ in., $40; 2 in., $45.—Webber Mfg. Co., 66-68 Stanhope Street, Boston.

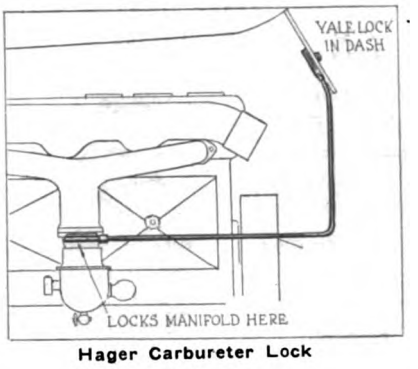
HARLEM TIRE PUMP

A single-action hand pump having a collapsible base which folds up out of the way. The tube is 1¼ x 22 in. heavy gage steel screwed into the base. Plunger rod is heavy and pump is finished in black enamel and nickel. Price $2.75.—Judd & Leland Mfg. Co., Clifton Springs, N. Y.


Niehoff Defectometer

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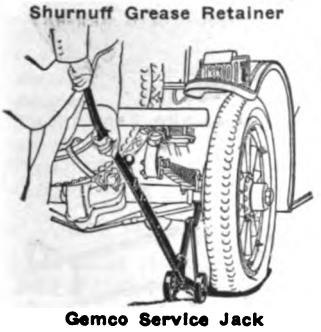

Shurnuff Grease Retainer



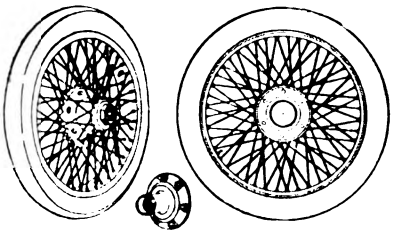
Hager Carbureter Lock

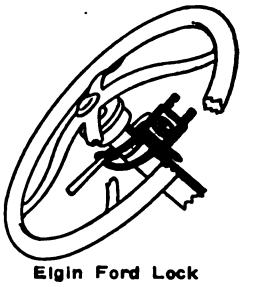

Smith Signal

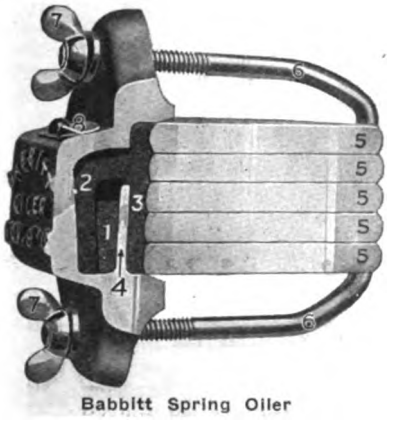

Miller 4-Cavity Vulcanizer


Gemco Service Jack

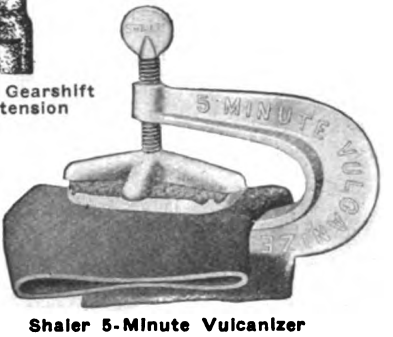

Mellin's Gearshift Entension


Houk Wire Wheels

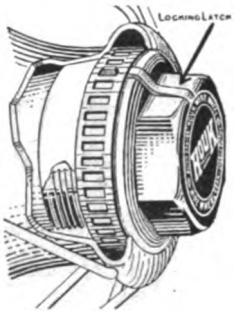

Elgin Ford Lock

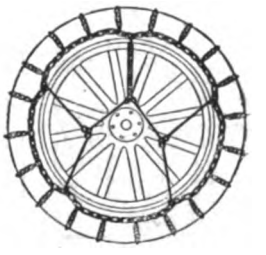


Babbitt Spring Oiler



Shaler 5-Minute Vulcanizer




Merchant's Chain Tightener

BABBITT SPRING OILER

A wick spring oiler clamped around the spring, oil being carried from the reservoir to the oiling pad by capillary attraction. Made for any make of car at from $3 to $12, according to size.—Babbitt Spring Oiler Co., 1907 East Thirteenth Street, Cleveland.

MILLER'S FOUR-CAVITY VULCANIZERS

This is a four-cavity vulcanizer, the widths of the cavities being 3, 3½, 4 and 4¾ in. across. Furnished with this outfit is a boiler, gas or gasoline burner, tube vulcanizer, bead molds and all necessary equipment. The weight complete is 800 lb. and price from $150 to $153, depending on style of burner.—Chas. E. Miller, Anderson, Ind.

HOUK QUICK CHANGE WIRE WHEELS

Quick change wire wheels with positive self-tightening hub cap with mechanical latch that locks each wheel securely. To remove the hub cap the Houk wrench is used, this pressing down the locking latch, unlocking the hub. When the wrench is removed the cap is locked automatically. A set consists of five wheels, four inner hubs, four hub caps, dust cover for spare wheel, hub-cap wrench and spoke nipple wrench. Furnished in black or other color enamel and with various kinds of rims.—Wire Wheel Corp. of America, 1700 Elmwood Avenue, Buffalo.

SHALER FIVE-MINUTE VULCANIZER

A solid fuel, portable tube vulcanizer for tubes, consisting of a C-clamp, screw and foot to hold the fuel unit and patch down on the tube. Either round or oblong patches can be vulcanized, there being patch units of both these shapes. The one-piece patch and fuel units consist of solid fuel, vulcanizing plate and patch of raw rubber, giving a fresh vulcanizing surface for each repair. Outfit consisting of vulcanizer, six each of the round and oblong patches and fuel units, sells for $1.50. Extra patches 75 cents per dozen.—C. A. Shaler Co., Waupun, Wis.

HAGER CARBURETOR LOCK

A bronze lock which operates a shutter placed between the carbureter and the intake manifold. The lock is actuated by a Yale key on the dash. Requires about an hour to install. Price $10 for Fords and $15 for all other makes.—Hager Auto Lock Co., Jewettville, N. Y.

GEMCO ONE-STROKE SERVICE JACK

A service jack which is adjusted for height by a knob on the handle, and lifts the car with one stroke. Is 8 in. wide and has lifting range from 8 to 18¼ in. Supporting arm and wheels are castings, all other parts steel. Weight 32 lb. Price $15.—Gemco Mfg. Co., Milwaukee.

MELLIN'S GEARSHIFT EXTENSION

An extension for gearshift levers consisting of a bent rod threaded at both ends and reversible. The device is heavily nickeled and is inserted between the ball top and the lever.—M. & H. Novelty Co., Los Angeles, Cal.

ELGIN FORD LOCK

A lock to lock the spark and throttle levers on a Ford car in such a position that the spark is all the way retarded and the throttle all the way closed. Lock furnished with two keys, packed six locks in a box. Retail price $2; price to dealers $15 per dozen.—Elgin Motor Power Mfg. Co., Cedar Rapids, Iowa.

SHURNUFF GREASE RETAINER

A grease retainer for Ford axles consisting of three felt washers, one rubber-asbestos washer, a cold-drawn steel cup and two retaining rings. The retainer remains stationary, the two rivets already in the axle preventing it from turning. One pair of retainers is packed in a cardboard box, and a counter display is furnished free to dealers with each dozen pair. Price per pair, 90 cents.—Shurnuff Mfg. Co., St. Louis.

MERCHANT'S TIRE CHAIN TIGHTENER

A combination of rods and springs to keep skid chains tight and prevent them from creeping around the wheel. Six small rods hook into the chain and two of them hook into the spring as shown in the illustration. The other end of the spring is attached to the chain. Price $1 per pair.—M. H. Merchant, 236-238 Emma Street, Syracuse.

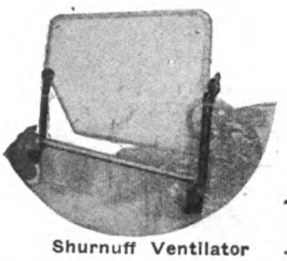
SMITH SIGNAL

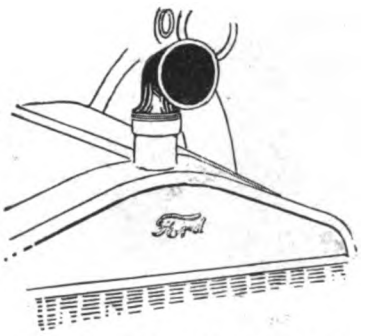
A signal box which is placed on the left rear fender of car and shows from both front and rear, visible day and night. Controlled for left, right or stop by a single three-way switch attached to steering column under steering wheel. Easily attached, with no moving parts to get out of order. Buzzer indicates that signal is working. The current from dry cells or lighting system may be used. Price $17.50.—Smith Signal Corp., 53-55 West Sixty-sixth Street, New York.

PARKO CLEANER

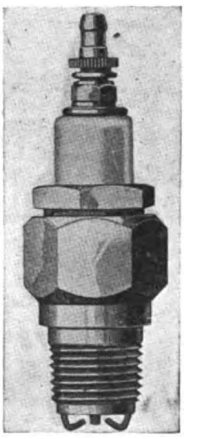
A soap for washing the hands without water. In screw-top 1-lb. cans selling for 25 cents. Fits in a repair kit. Can also be used with water.—Parker-Rishor Sales Co., 50 South Water Street, Rochester.

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Shurnuff Ventilator

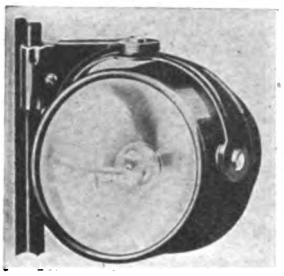

New Era Moto Nose


Watch Hook and Protector

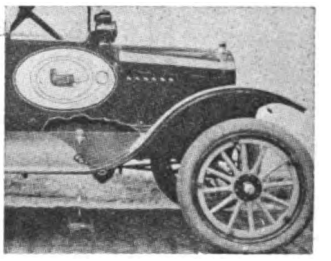

Woodworth Gibraltar Plug

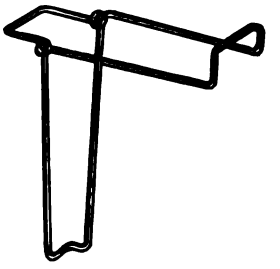

More-Lite Lens

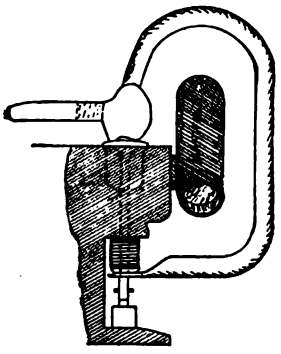

Gray Lock

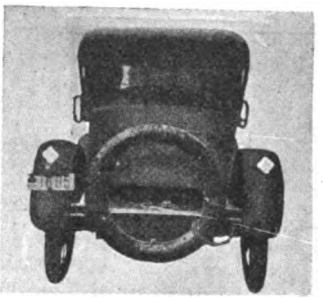

Stewart Searchlight

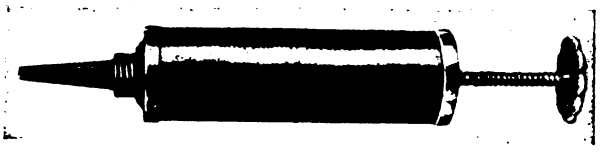

Back


Vaporator Oil Cock


Jackie Tire Rest


Beardsley Valve Lifter


Diamond Signal


Shields Injector

VAPORATOR OIL COCK

A device to test the oil level of a Ford, replacing the lower petcock. It is screwed into the petcock hole and extends at right angles, there being a leather valve held on its seat by a spring. A wire extends from the valve to the side of the car, so that by pulling the wire the valve is lifted off its seat, allowing oil to drop out of a hole if the level is the correct height. Price $1 installed, 75 cents retail price.—Vaporator Mfg. Co., 2737 Washington Avenue, St. Louis.

WOODWORTH GIBRALTAR SPARK PLUG

A plug of large size for hard service with extra large porcelain made of Cornish Kaolin, made in all sizes and threads. Price $1. Also made in junior size with smaller shell and porcelain. Price 75 cents.—Woodworth Mfg. Co., Niagara Falls, N. Y.

MORE-LITE LENS

A lens for overcoming glare and at the same time diffusing light evenly over the road. Prices, 8-8½ in., $1.50; 8⅝-9½ in., $1.75; 9⅝-10¼ in., $2; 10½-11¼ in., $2.25.—L. E. Smith Glass Co., Mount Pleasant, Pa.

SHURNUFF VENTILATORS FOR FORDS

Allows the lower half of Ford windshield to swing inward by means of two black enameled uprights attaching to the hinges in the center of the present windshield. Uprights are so shaped that the sides of the shield are rain-proof. A metal and rubber strip is provided which, when fastened to the cowl, makes it rainproof at the bottom and a metal handle is attached to the lower sash so that it may be pulled backward. Counter display stand is furnished free to dealers with each half dozen. Price for regular set complete for 1915, 1916 and early 1917 cars, or special set for 1917 and 1918 cars, $7.50.—Shurnuff Mfg. Co., St. Louis.

NEW ERA MOTO NOSE

A ventilator for Ford radiators shaped like a ship's funnel which screws into the radiator filler and admits cold air into the radiator. A screen in the funnel keeps out dirt. Price $1 in black enamel and $1.50 in nickel.—New Era Spring & Specialty Co., Grand Rapids, Mich.

WATCH HOOK AND PROTECTOR

A watch hook and protector allowing the watch to be attached to any portion of the clothing where it can easily be seen. Watch can be removed in a few seconds from the hanger. Glass is protected. Metal device is nickel plated, strap is cowhide with a nickel-plated buckle. Price 50 cents.—Mealy Mfg. Co., Coca Cola Building, Baltimore.

GRAY-LOCK

A gearshift lock which locks the lever in neutral and prevents it being shifted into any gear. Can be installed in 30 min. by putting two bolts through the dash, and consists of a hinged hasp which fits over the shift lever, the hasp being locked to the dash. Price $6.—Gray-Lock Co., 2604 Ninth Ave., Oakland, Cal.

STEWART V-RAY SEARCHLIGHT

A searchlight that can be turned in any direction, used as a trouble lamp for lighting inside of car or for camping. Attaching bracket fits all windshield standards. Has silver plated reflector, 6 in reflector, uses any size bulb and has 3½ in. reducing mirror on back. Price $5.—Stewart-Warner speedometer Corp., 1826-52 Diversey Blvd., Chicago.

SHIELDS INJECTOR

A grease gun using cartridges containing grease, operated by slipping a cartridge into injector and turning handle. Made of steel finished in black enamel with nickel trimmings. Cartridges hold 1½ lb. of grease and sell for 40 cents. Price of injector with twelve cartridges $4.80.—Wheless-Wilson Auto Supply Co., Shreveport, La.

DIAMOND STOP AND TURNING SIGNAL

A signaling device consisting of two small diamond-shape lamps fastened at the right and left rear of the car. Glasses show red when driver is going to stop. Left glass shows red for turn to the left and right glass turns red for turn to the right. Operated by small one-lever switch, fastened to steering column under steering wheel. Price $15 per set.—Diamond Signal Co., 715 Market St., San Francisco.

JACKIE TIRE REST

A tire-saving jack that has two parts constructed of ½-in. round steel, the parts being hinged so that when the handle is lifted up the car wheel is raised. Set consists of four jacks, weighing 31 lb., retail price $3. Made in two sizes, one for 30-31-in. wheels and the other for 34-36-in. wheels.—Nelson-Bacon Mfg. Co., Oshkosh, Wis.

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TRI-CO RAIN RUBBER

A device to remove rain from the windshield. Consists of two arms with multiple rubbers and a spring to hold it in position. It slides in the slot between the glasses and cleans clear across both. It does not rattle, and celluloid rivets prevent scratching. Can be attached in a few seconds. Price $1.50.—Tri-Continental Corp., Sidway Building, Buffalo.

NORWESCO VALVE GRINDING COMPOUND

A valve grinding compound made in fine, medium and coarse grades, containing neither ground glass nor emery. Single collapsible 1½ ounce tubes 25 cents, 4 ounce cans, containing coarse on one side and fine on the other, 40 cents; 1 lb. cans $1.—Northwestern Chemical Co., Marietta, Ohio.

ECO HEADLIGHT CONTROLLER

A device to control the quantity of light by a controller on the steering column under the wheel so that it can be reached by the fingers without taking the hands off the wheel. This operates a rheostat which allows lights to burn from full brilliancy to a dull glow. Weighs less than 2 lb., is nickel plated and sells for $7.50.—Western Mfg. Co., Oskaloosa, Iowa.

RIE NIE LEATHER DRESSING

A liquid dressing to penetrate, soften, preserve and waterproof cushions, tops, Pantasote, leather and rubber goods. Prices, pints 40 cents, quarts 75 cents, half-gallons $1.25, gallons $2.25.—Durkee-Atwood Co., Minneapolis.

BANNER WOOD CREEPER

Constructed of wood to fit the back and has an upholstered headrest permanently fastened to the creeper. Castors are ball bearing type of steel and tool trays are added on the side. Size 37 x 22 in., weight 7½ lb., price $2.—Banner Accessory Mfg. Co., St. Louis.

GEMCO LUGGAGE CARRIER

A runningboard luggage carrier having clamps to be secured to the runningboard with thumb screws, these clamps having slots in the top arm so that straps can be run through the hollow arm and out of any of the holes and buckled around the luggage. Set consisting of two carriers and two straps sells for $2.50.—Gemco Mfg. Co., Milwaukee.

POWERS TOOL CASE

A tool case with seven pockets especially prepared for Ford tools. Made of waterproof leatherette with web tie strap. Size when flap is folded 12 by 13½ in. Price 80 cents.—Powers Mfg. Co., Waterloo, Iowa.

GOODRICH LOCK SWITCH FOR FORDS

A lock switch attaching to coil box on Fords with screws concealed by steel shutters when key is turned. Made of ductile metal, special alloy, which will not split or crack. Spring contact and metal disc concealed within the switch make it impossible to tamper with wires back of the dash and thereby start the engine. Price $3.50, $4.50 in Canada. — Goodrich-Lenhart Mfg. Co., Widener Building, Philadelphia.

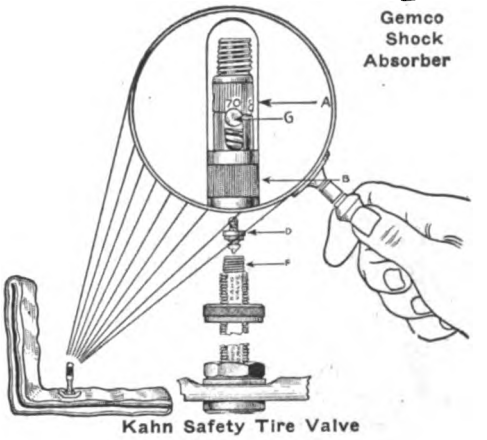
WHIZ BODY SPRAY POLISH

A liquid spray polish to remove streaks and stains and to restore and preserve the finish by feeding the varnish with oils and gums. Pints 50 cents, quarts $1, gallons $3.—R. M. Hollingshead Co., Camden, N. J.

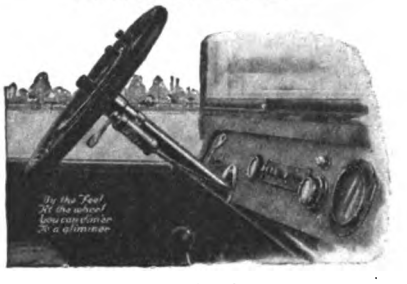


Tri-Co Rain Rubber

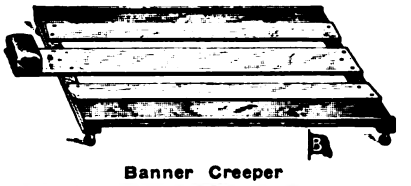
Gemco Shock Absorber



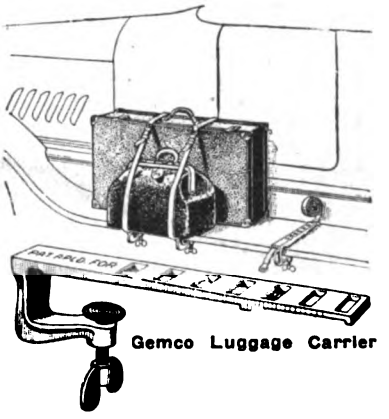
Kahn Safety Tire Valve



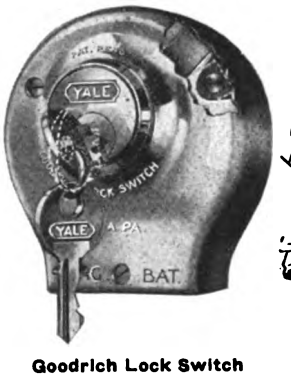
Eco Headlight Controller



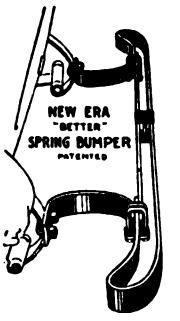
Banner Creeper



Gemco Luggage Carrier



Goodrich Lock Switch



New Era Bumper

CHAMPION ABSORBERS FOR FORDS

A spring shock absorber consisting of a specially made shackle to be substituted for the regular Ford shackle, and a pair of coil springs placed between the extended arms of the shackle and the regular spring. The lower seat of the two coil springs is pivoted to allow independent action of the springs. —Champion Shock Absorber Sales Co., Inc., 918 North Senate Avenue, Indianapolis.

KAHN AUTOMATIC SAFETY TIRE VALVE

A safety tire valve so constructed that when the pressure in the tube reaches a predetermined point the valve blows off. It can be set for any pressure, pressures being marked on the valve in pounds. Fits any tube and has standard threads for both lock nuts and valve caps.—Armstrong Rubber Co., Inc., 118-122 Adams Street, Newark, N. J.

SURE-HOLD TRANSMISSION BAND LININGS FOR FORDS

Transmission linings for Fords in which a resilient facing of cork has been applied to the ordinary lining, this cork being securely attached by cementing and stitching. Price per set of three with brass rivets $2.—Right Motor Specialties Co., 1326 Michigan Avenue, Chicago.

CLERO BULL-DOG HORN

An electric vibrator horn made entirely on automatic machinery so that it can be turned out at a low price. Has the same mechanism as the Clero horn, excepting for the bell which is shorter and round shape. Price $3.—Fitzgerald Mfg. Co., Torrington, Conn.

WOOD'S TIRE PATCH

A tire patch for repairing tubes containing fabric, cured rubber which is pressed into the fabric and uncured rubber which is the adhesive. Patches are applied with rubber cement. Made in three sizes selling for 50 cents, $1 and $1.50.—W. C. Wood Co., Minneapolis.

EVER LAST TREAD

A new tread which is applied to an old tire by a process of cold cure cement after the old rubber is first removed from the old casing. Made in all sizes from 30 x 3 in. to 37 x 5 in. at prices from $10.50 to $33.50. Ever Last Tread Co., 128 East New York Street, Indianapolis.

SE-MENT-OL

A radiator cement in powder form which dissolves in the warm water of the cooling system and solidifies on contact with the air through a leak. Screw top 7 ounce can 75 cents. — Northwestern Chemical Co., Marietta, Ohio.

DUTCH BRAND 2 IN 1 TREAD FILLER

A tread filler to prevent sand, gravel and moisture from entering cuts in the treads of tires. Price 25 cents in collapsible tube. —Van Cleef Bros., 7701-7711 Woodlawn Avenue, Chicago.

WHIZ TAR REMOVER

A liquid remover to dissolve tar and road oil without injuring the varnish. Pints 50 cents, quarts $1, gallons $3.—R. M. Hollingshead Co., Camden, N. J.

NEW ERA SPRING BUMPERS

Spring bumpers for front and rear of all makes of cars. Bumper is double flat steel car with spacer in center and various methods of attachment, depending on the style of car. Prices $10 in black enamel, $11.50 with nickel front.—New Era Spring Specialty Co., Grand Rapids, Mich.

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STINSON VENTILATING WINDSHIELD

An extension to the lower end of the upper glass of Ford windshields, so that when the upper glass is turned back the extension projects above the lower glass, throwing the air into the driver's compartment. Constructed of plate glass with a steel frame and spring steel clamps. Price $2.—E. B. Stinson, Jr., & Co., 2402 Transit Avenue, Louisville, Ky.

AJAX LUNCH KIT

A lunch kit shaped like a small trunk. In addition to the compartment for food, it contains a complete dining outfit for six persons. Made of veneered basswood, bound with enamel duck, sole leather corners and nickel trimmings. Also has ice box with threaded cover to prevent water coming out. Food is carried in compartments on each side. Price $50.—Ajax Trunk & Sample Case Co., 144-150 West Eighteenth Street, New York.

DETROIT GASOLINE GAGE

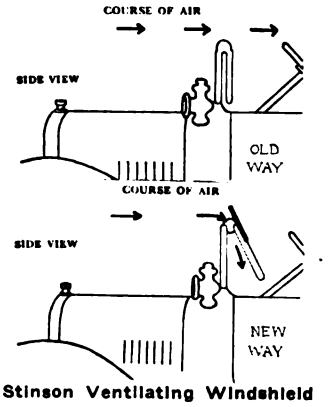
A gasoline gage for Fords that screws into the filler opening and does not have to be removed when tank is being filled, as the filler opening is offset. Indicates in gallons, half-gallons and quarts. Has no gears; gage head rests on top of tank cover and dial is large with unobstructed view of face. Price $1.50.—Detroit Gasoline Gage Co., 401 Marquette Bldg., Detroit.

WHIRLYFLAG RADIATOR ORNAMENT

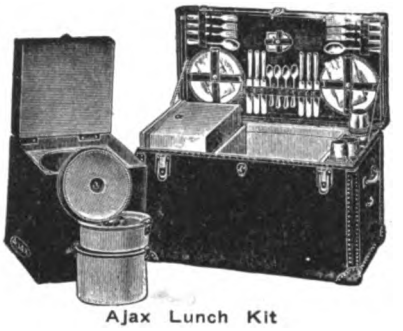
A durable patriotic radiator ornament which revolves rapidly in the breeze, giving the appearance of waving. Price $1.—Prismolite Co., Fourth and Gay Streets, Columbus, Ohio.

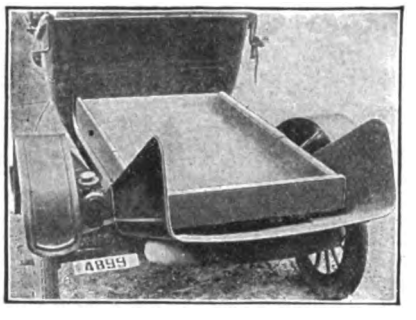
NEW ERA SPRING BUMPER

This new bumper has a double cross bar, and is interchangeable for 90 per cent of the cars now on the market. It is also stated that 93 per cent of the cars now in use will take either the patented ratchet or hook-on attaching arms supplied with this bumper. Main bars are highly tempered spring steel and short detachable attaching arms are semi-tempered. It employs a double front bar across the full length with center tie to give maximum strength from end to end without weak points. The bumper is furnished in black or black with a nickel front bar, the nickel being plated on duplex copper. The material is 1¾ x 5/16 in. spring steel. The price is $10 for the black, and $11.50 for the nickel front. Add 10 per cent West of Denver.—New Era Spring & Specialty Co., Grand Rapids, Mich.



Stinson Ventilating Windshield


Ajax Lunch Kit




Murphy Disappearing Ford Truck Body

MURPHY DISAPPEARING FORD TRUCK BODY.

An interchangeable passenger and delivery body for Fords in which the original Ford rear compartment is removed and the Murphy body bolted in place. After being attached, it takes but a few seconds to change from pleasure to delivery and vice versa. When used as a delivery, turn back the entire cover and slide the telescoping steel box out to engage under the steel strap across the inside of the cover. Loading space 32 x 69 in. Sole sales representatives, C. L. S. Holmes, 702 Boston Block, Minneapolis.

EVERBRIGHT METAL POLISH

A liquid metal polish for brass, copper, nickel, silver, aluminum, etc. Half pints 15 cents, pints 25 cents, half gallons 75 cents, gallons $1.25.—Everbright Mfg. Co., 409 Golden Gate Ave., San Francisco.

POWERS TRANSMISSION BRAKE LINING FOR FORDS

Transmission brake lining for Fords made of long fibre cotton treated with compound to make it oil and waterproof. Contains no wire. Packed in cartons of three pieces cut the proper length with necessary brass rivets. Price $1.35.—Powers Mfg. Co., Waterloo, Ia.

BUFFINGTON LUGGAGE CARRIER

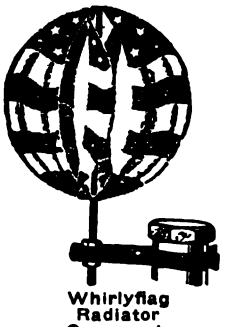
A carrier attached to the rear of the front seat with ample room for clothes, light blankets or lunch. Two pockets are on the front of the carrier, designed to hold reading matter, clothes brushes and other small articles. Carrier is made of imitation black leather, weighs 2 lb., is 33 in. long by 15 in. wide, and will not mar the car.—C. A. Buffington & Co., Berkshire, N. Y.

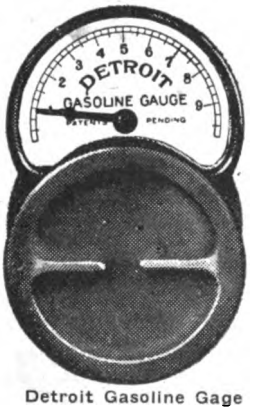
BUFFINGTON TIRE-SAVING JACK

A tire-saving jack with framework of ½-in. round polished steel and block of wood provided with holes to adjust height. Footrest is 5 x 8 in., and there is nothing to mar the car. Finished in black enamel and furnished in sets of four.—C. A. Buffington, Berkshire, N. Y.

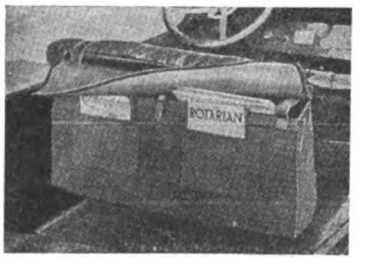
BURGESS REBOUND CHECK

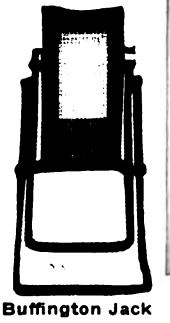
A rebound check and shock absorber, one end of which is attached to spring hanger, and the other end clamped around leaf spring about one-third of the way to the center. A spiral coil spring supports a plunger, the lower end of which attaches to the end of the leaf spring. Set of four for Fords sells for $15.—Zinke Co., 1323-1325 Michigan Avenue, Chicago.

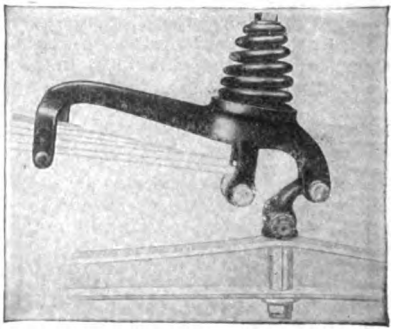

Whirlyflag Radiator Ornament

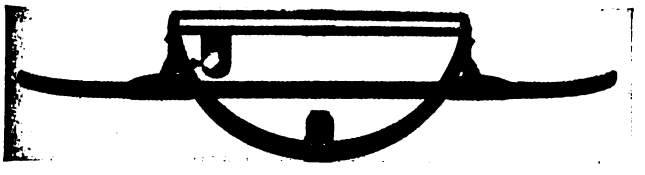


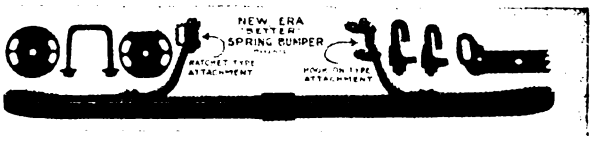
Detroit Gasoline Gage


Buffington Luggage Carrier


Buffington Jack


Burgess Rebound Check


New Era Spring Bumper with Tire Carrier



New Era Spring Bumper

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LIBERTY FLAG HOLDER

A flag holder combined with a bright star with three bars of red, white and blue, fitting any radiator cap, windshield or inside of limousine. Price with flag, $1. Another flag holder to hold five flags rigidly and securely sells for 15 cents.—H. K. Metal Products Co., 60 Grand Street, New York City.

TROY TRAILERS

Four-wheel trailers which track with the towing vehicle, made in capacities of 1-2 tons and 3-5 tons. Built with patent spring drawbar which takes up shocks and steers the trailer. Frame is channel section, braced, gusseted and riveted, springs are semi-elliptic, I-beam axles, artillery wheels and solid rubber tires. Prices are $695 for the 1-2 ton and $1540 for the 3-5 model.—Troy Wagon Wks. Co., Troy, Ohio.

GEMCO LIGHT TRUCK BUMPER

A rigid bumper for trucks up to 2 tons capacity. Fits without alteration on trucks that have a projecting frame. Details of make of truck, width of frame or springs and whether tapered or not are advisable to secure proper yokes for fastening. Packed 5 in a crate. Price $11.74 in nickel, $10.58 in black finish.—Gemco Mfg. Co., Milwaukee.

OGDEN SPEEDOMETER SWIVELS

Swivel joints for speedometers with spiral three-quarter diameter gears and ball bearing. Can be adapted for either right or left side drive by simply removing the driven end.—Ogden Mfg. Co., Plymouth, Ind.

COMFO-LUX BACK REST

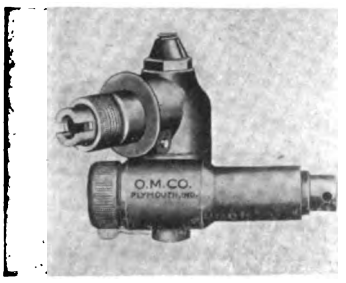
A back rest for driver's seat of concave construction to fill out hollow space between the seat and the driver's shoulders. It is stiffened to prevent sagging and getting out of shape. Fits any make of car. Price $3.—Rudolph Coaus, Coaus Building, Ottawa, Ill.

AUXILIARY RADIUS ROD

Made of ⅞-in. tubing fastening under the head of the spring bolt on the two front ends and clamped over the Ford radius rod near the ball end at the rear. Also made in 1-in. angle iron instead of the tubing. Price $2 for either style.—S-E Motor Eng. Co., 14 East Jackson Boulevard, Chicago.



Black & Decker Portable Drill



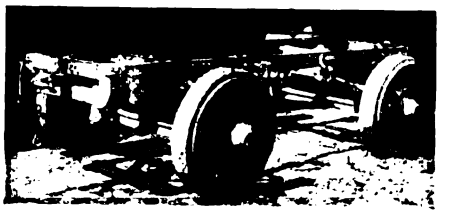
Ogden Speedometer Swivel



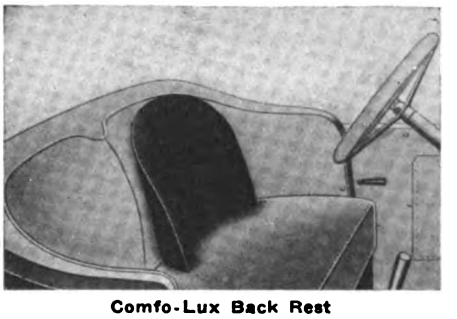
Liberty Flag Holder



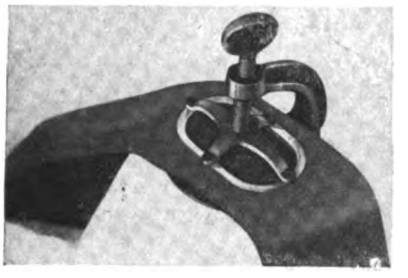
Williams Wrench Sets



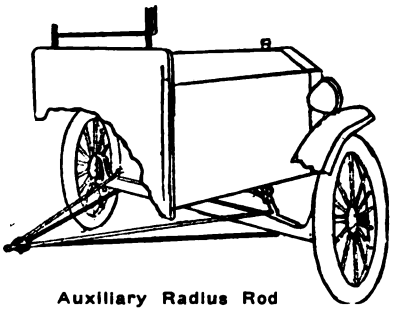
Troy Trailer



Comfo-Lux Back Rest



C S Vulcanizer



Auxiliary Radius Rod



Missing Link

FIT-ALL ADJUSTABLE PEDALS

Adjustable pedals which can be extended or folded up for short or tall drivers. The pad is hinged and when dropped down is in the low position. Can be extended 3¼ in. by means of the strut under the pad. Price $5 per pair.—George Borgfeldt & Co., Sixteenth Street & Irving Place, New York City.

WILLIAMS WRENCH SETS

Solid end wrenches put up in various assortments and in three styles, unfinished with openings milled to fit nut on screw for which they are intended, semi-finished in which the forgings are milled, case-hardened, black-lacquered and the heads ground bright; finished in which the forgings are milled, polished, case-hardened and lacquered with heads bright. Sets are supplied to dealers, mounted in groups of about six of each size on "Silent Salesmen" display boards. The wrenches on these boards are sold at the regular prices, but mounts are free.—J. H. Williams & Co., Brooklyn, N. Y.

C S VULCANIZER AND PATCHES

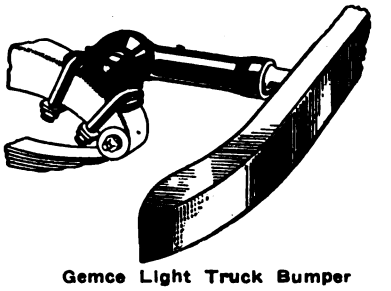
Vulcanizer consists of a small cast-iron clamp and screw and uses oblong tin patches with heat producer. Requires 5 min. per patch. The patches are packed twelve in a carton, retailing for 60 cents per dozen. Clamp retails at $1. Prices to dealers are 45 cents a dozen for patches and 70 cents per clamp with six patches.—Canton Specialty Co., Canton, Ill.

BLACK & DECKER PORTABLE DRILL

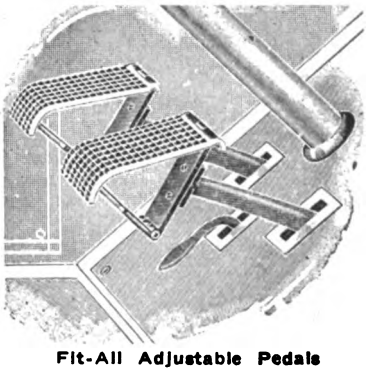
A portable electric drill with compensated interpoled type universal motor, operating either on direct or alternating current. Made light by use of aluminum alloy field casting. Has automatic pistol grip and trigger switch, giving control of the drill. Size illustrated is 3/16 in., which weighs 6¾ lbs., speed 1900 r.p.m., and furnished with 15 ft. of cord. Price $50 for 110 volts and $53 for 220 volts. The ⅞ in. size which has pistol grip and trigger at bottom and breast plate at end, weighs 24 lbs., speed 450 r.p.m., and price is $100 for 110 volts, and $103 for 220 volts.—Black & Decker Mfg. Co., 109-115 S. Calvert St., Baltimore.

MISSING LINK FOR SKID CHAINS

A repair link with open eyes, two of which are used to repair broken cross chains. Put up in handy holders containing ten links suitable for tool kits.—Stolp Electric Specialties Co., 2210 South Park Avenue, Chicago.



Gemce Light Truck Bumper



Fit-All Adjustable Pedals

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NEW ERA WHEEL CARRIER FOR FORD CARS

A wire wheel carrier constructed of angles attached to rear spring clips. For touring car and sedan the carrier is interchangeable and designed to follow body line of car. Price $5.—New Era Spring & Specialty Co., Grand Rapids, Mich.

HUDSON CRANKCASE REPAIR ARM

An A-shaped forging with ends bent at right angles to replace the rear engine supports on the Ford car. To install it is only necessary to loosen three bolts, slip the repair arm in place, and tighten. Price $1.50—Hudson Specialties Co., Real Estate Trust Building, Philadelphia.

PANVAR BODY FINISH

A light liquid finish applied with a long soft brush, claimed to level itself out eliminating brush marks and will not crack, peel or turn white. Price $1.50 per quart. Can also be used on tops and seats.—Panvar Co., Bulletin Building, Philadelphia

ATTWOOD GREASE MACHINE

A grease measuring machine and pump to handle fibrous and shredded grease. It is valveless, the container being made of 22-gage galvanized iron; indicator, pump cylinder and all attachments of cast brass. A full stroke measures ¼ lb., surplus discharging back to container.—Fulton Sales Co., 910 S. Michigan Blvd., Chicago.

RIE NIE MOHAIR DRESSING

A preparation to bring out the silky and mohair effects and waterproof the material. Prices, pints 75 cents, quarts $1.25, half-gallons $2.25.—Durkee-Atwood Co., Minneapolis.

NEW RED SPOT SEARCHLIGHT

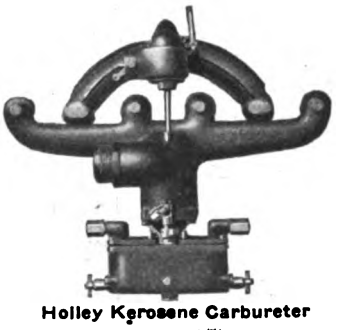
A powerful light 7 in. in diameter, having a 30-cp. bulb. Red and white rays are selective by pressing a button. Furnished complete with bracket, cord and bulb for $9.50.—F. W. Wakefield Brass Co., Vermillion, Ohio.

HERCULES SPARK PLUGS

A spark plug with special stone insulator capable of withstanding heat and vibration. Has a spring gland to prevent crushing the insulator and to hold the plug compression tight. Made in two models, the Hercules Giant selling for $1 and the Hercules Junior, 75 cents.—Eclipse Mfg. Co., Indianapolis.



Red Spot Searchlight



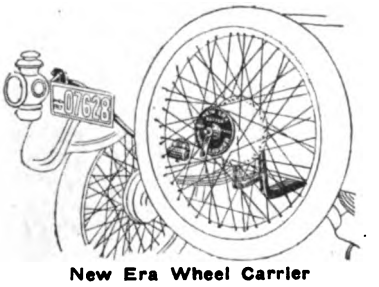
Holley Kerosene Carbureter



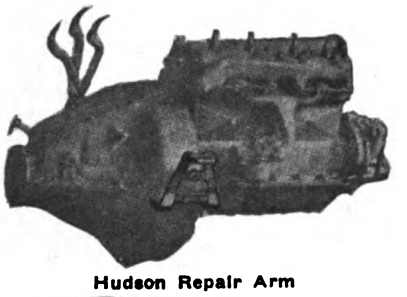
Gemco Rear Frame Bumper



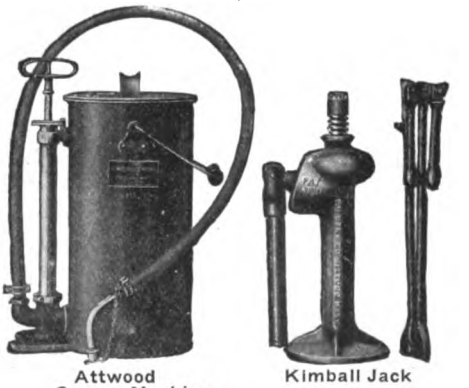
New Era Tire Holder

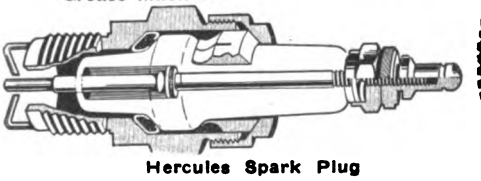


New Era Wheel Carrier



Hudson Repair Arm





Hercules Spark Plug

HOLLEY KEROSENE CARBURETER FOR FORDS

A carbureter for Fords to use kerosene, distillate, benzol, gasoline or any hydrocarbon with a final boiling point below 600 deg. Fahr. Operates independently of gasoline except for the short time required in heating the carbureter. Complete outfit includes head, shim, tank, exhaust pipe, and other parts and accessories, $35.—Holley Kerosene Carburetor Co., 145-147 Willis Avenue, E., Detroit.

GEMCO REAR-FRAME BUMPER

A rigid bumper made in channel, diamond and round bar and in black or nickel finish, for any car with cantilever rear springs, such as the Buick, Kissel and others. Gemco basket-type tire carriers can be combined with the bumpers. Prices range from $7.94 to $12.08, depending on size, style of bar and finish.—Gemco Mfg. Co., Milwaukee.

ROWELL FORD CRANKER

A spring starter with the power stored in a long coil spring made of 5/16-in. spring wire. When the car is started the spring winds up to a predetermined tension and then automatically cuts out.—I. B. Rowell Co., Waukesha, Wis.

NEW ERA STRAPLESS TIRE HOLDER

A side tire holder of strap steel that needs no straps. A locking device is part of the holder, as are also the tire supports. A self-expanding carrying rim can be furnished where demountable rims are not used. Price $2 single, $3 double, $1.50 for carrying rim.—New Era Spring & Specialty Co., Grand Rapids, Mich.

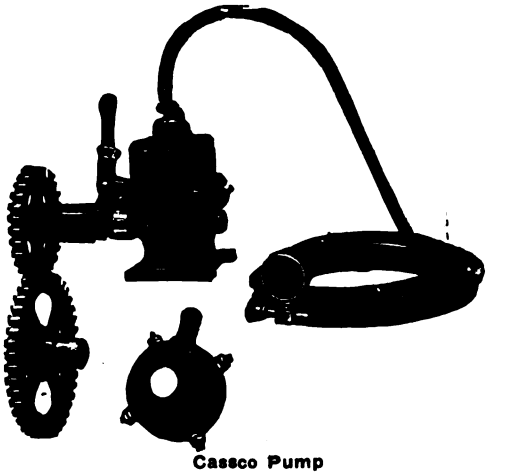
KIMBALL BALL BEARING JACK

A heavy type truck jack with long handle and wide handle grips to permit lifting car without reaching under it. Has diamond-point hardened steel top, ball bearings carry the lift and thrust and a ball socket holds the handle rigid while sliding jack under car. The handle folds up in a small space. No. 1, with lift from 9 to 15 in.; No. 3, 11 to 18 in.; No. 4, 12 to 20 in. Price $5 for all models.—Edward A. Cassidy Co., Inc., Madison Avenue and Fortieth Street, New York.

CASSCO ENGINE-DRIVEN PUMP

An engine-driven tire pump for Fords bolted to the right side of engine frame at front. A new timer is supplied with the outfit, and the hub of the driving gear extends through the top of this timer to the camshaft, this gear driving the pinion or slide gear mounted on the end of the pump shaft. No machine work is necessary. Price is $10 complete with all fittings.—Edward A. Cassidy Co., Inc., Madison Avenue and Fortieth Street, New York.

(*Continued on page* 103)



Cassco Pump

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Tommy Trumbull

HAS A TOUCH OF PACIFISM

By Ray W. Sherman

TOMMY TRUMBULL was taking a last look at the morning paper before throwing it into the waste basket and beginning his day's work.

"Do you know," he said, talking in the direction of Reilly, "I've thought a lot about this war and I don't seem to grasp it all. It seems to me like an awful thing. Sometimes I think I can't get enthusiastic about it."

"No?" noncommittally asked the Sennett dealer.

"I've bought bonds—all I can carry. I've done everything I can do, I wouldn't utter a word of my thoughts to any one but you—for they might be misunderstood. But I have a hard time all by myself just the same."

"Well—" Reilly hesitated. "Maybe there are a lot of people like yourself, Tommy. Who knows? There are comparatively few people in the world who really like war. And there aren't many people who would relish the idea of going across the street and hitting that husky street sweeper in the eye—but under certain conditions I think you or I might do it, don't you think?"

"Maybe," assented Tommy, flipping the paper into the basket.

"You see, Tommy, you and I are both pretty young compared to our country, and sometimes we forget just what it all means to us. If every man and woman in the United States were a hundred and fifty years old there wouldn't be many pacifists, and it wouldn't be as hard as it is to get the Liberty loans across.

"Just think for a minute, Tommy. Supposing you were living in a country like England under a king like George the Third, who was so German he could speak hardly a word of English. Supposing conditions became intolerable and you said: 'I don't like it here. I'll pull up and go to a country where there are no laws such as these, where I can live in peace and contentment and prosper and grow according to my own ability.'

"So you pull up and sail for a new country. You settle down. You find opportunities. You prosper, and all those around you prosper. Your children have opportunities, and your children's children become prosperous and happy and famous.

"You and the rest of the people who came with you make laws. You lay out the country and govern it according to your own desires. You get a taste of the freedom you never knew back on the other side in the old days, and you come to love the thing, the institution, that you have built with your own hands. You have seen it grow. You love it.

> "Do you know," said Tommy, "I have a hard time getting enthusiastic about this war? And then" —but read the story.

"And finally you shake it clear of all the encumbrances that tied it to the old country with its nasty kings and its hated laws. You sail along smoothly. And then the old institution across the water takes a nasty fling at you, and finally, after you have stood about all you can, you fight off the old institutions again—and once more you begin to build the institution you have created here.

"Troubles come. They always do. Part of your country wants to break away. There is a hard fight over that. Then an old world power carries its oppression too far on an island near your shores, and, like a good neighbor, you help the oppressed, for you can't stand it to see the hated institutions you have left behind inflicting themselves upon the new world which you have flooded with the sunlight of freedom.

"You have a long period of happiness and peace. You begin to believe the whole world will eventually come to your way of thinking, because much of it already has done so.

"In your years of peace and contentment you often sit and dream of the old days when you came across the water, of the hardships you endured that you might have freedom of body and of mind, of the wonderful big country you have built where only wilderness was when you came—and as the smoke curls up from your pipe your heart warms in love of the thing you have built.

"Then a menace arises. The old institutions are once more asserting themselves. They try to expand and break down the ideals toward which you have built. You can see that your own great institution, with all its freedom and happiness, must fall unless this menace can be beaten down, with all its cruelty and oppression.

"If you were a hundred and fifty years old and could personally realize what it all means don't you think you would forsake your peace and prosperity and fight for the thing that you yourself had built?"

"Yes, I guess I would," said Tommy.

"Just supposing you had built a beautiful grape arbor back of your home. You did it all with your own hands. You drove the stakes, planted the shoots, trained them up, enjoyed the fruit, cared for it year by year, and looked forward to the enjoyment you would get from it in the years to come.

"And, now, along comes that street sweeper across the way. He steals a bunch of grapes. You tell him he ought not to do that, and that you don't want him to do it any more.

"He says he won't. But in a few days he comes along again and yanks so hard at a bunch of grapes that he pulls down part of the vine. This time you begin to get sore, and you go out again and tell the man he MUST NOT do that, because the vine is yours, you raised it with your own hands, and you don't care to see it destroyed.

"In a few days the street sweeper yanks again and pulls down a lot more vine. How would you feel? Would you let him keep on yanking in order to preserve peace, or would you take off your coat and throw him over the front gate?"

"What would I do?" snapped Tommy. "I'd make a mess of him."

"Certainly you would, and that is a close parallel to what is happening to-day in this war."

"But nobody ever taught me that when I went to school," lamented Tommy. "Nobody ever taught me love of country. Nobody ever told me what our free institutions mean. All I ever was taught was to hate England, and I have a hard time even now cheering when they show the Union Jack."

"Our teaching has been negative," exclaimed Reilly. "I have found it so myself. They taught us of battles, and hateful things, and war and strife and everything like that and they never said a word about love of country in such a way that it set itself in our youthful minds. We went at it wrong and to-day we're paying the penalty in a sluggish patriotism in many quarters.

"It takes a month to raise a government loan because we don't understand that it's OUR loan. We don't realize that the fight is not for geography but for the free air we breathe. We—"

"Yes," said Tommy, "I didn't realize. I never knew. It looks different now."

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Editorial Observation

War Service Recommendations

FOR the first time in the history of the industry the dealers have collectively taken action of a national nature. The War Service Committee of the National Automobile Dealers' Association has investigated conditions within the trade and has adopted certain recommendations for co-operation with the government in attaining greater efficiency. To help win the war is, of course, the object, but the object will be beneficial in peace times as well.

The primary consideration in these recommendations is labor. The desire is so to shape the trade that it can better stand the losses of men that are occurring every day and that it can give more of its skilled men and have more skilled men to give. The story of the recommendation is told in the news section of Motor World this week.

First in the list comes the elimination of "unnecessary service," and, while many will contend that some service is necessary if cars are to give greatest value to the owners, a further recommendation is that dealers so educate their customers that service which now is called necessary may become unnecessary. If both recommendations are worked equally they should work out well.

It is also proposed that Sunday and night service be cut down considerably and that service on these periods be thrown to one or a few shops, so that all shops may not have to maintain a complete service squad. This plan has been tried in at least one town for some time. It should be as popular with the workmen as with the employers.

Fundamentally the biggest idea in the whole group is that of the training of mechanics. It is recommended that associations operate schools for training men, and that where no capable associations exist the dealers co-operate in this work, encouraging apprentices and helping make unskilled men into skilled workers.

This is one of the greatest needs of the trade. The idea of training men is being agitated. It is only a question of time until practical application of the idea will come. It must—else there will be a dangerous shortage of men. It is indicative of the caliber of the dealers' War Service Committee that it has so promptly grasped this timely question.

The cash basis for the dealer's business is another recommendation, one which has already been adopted by thousands. Probably no idea has been taken up so rapidly with so little urging, as is evidenced by the news stories in Motor World every week, telling of cities that have "gone cash" en masse.

Saving of materials has always been a good idea and is not new, as is the case with demonstrating costs. These latter are things the trade should have taken up long ago, and the ideas should have deep consideration now that this group of trade leaders has seen fit to recommend them as war emergency measures.

Speaking of Associations

THERE are or have been local dealer associations in nearly all the principal cities of the United States. Some are more energetic than others.

The try-out of these organizations has been given no better test than in the work on the Liberty Loan. In some cities the job has been done well. When the call came a working organization was already in existence, prepared to put the loans over in a big way. In other cities the loans were handled in only a half-hearted manner.

Some associations have shot far above the quotas set. Some associations have been given quotas far too large. Others have not been permitted to operate as a trade group on the third loan, for some reason not quite clear, although they did well on the other loans.

But, aside from this loan question, there remains the degree of spizz and life in the local organization. If an association is not thoroughly alive it should be made so. The reason for lackadaisical conduct probably varies in each case, but the reasons should be found and the condition remedied.

A local association can be a wonderful benefit to the dealers. The individuals should take an active interest in the work. The organization should be a live, working unit of the men in the trade rather than an office with a secretary of whom everything is expected.

Dealers who feel that their association isn't all it should be would do well to ascertain if there is danger of dry rot, because, with the trade progress that is being made, there will soon be a line-up of live ones with a second rank of not-so-live-ones—and, naturally, the various cities would prefer being among the leaders rather than among the less successful.

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Letters From Readers

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

Must Train Men

Editor Motor World: There is scarcely a day goes by but that a letter comes to my desk from some dealer asking for a first-class mechanic and electrical man. It does not seem clear in the garageman's and repairman's mind that they are not going to pick up such men—but that they have got to make them; they have got to get busy and begin to make them—that is, train every man they have in their employ to be a better mechanic. I find that the majority of the garages—especially the medium-sized or smaller garages—make no effort, or take an interest in their help along these lines. A great many of them are very good prospects for making good mechanics, but they are always looking for somebody better and trying to leap a gap between.

This seems to be one of the big points that is overlooked in the city of Minneapolis to-day. There is hardly a garage that isn't short good mechanics and while a great many of them have a sufficient number of helpers they are still "hollering" for good men. Now, if they would put the effort back of the help they have, put a man in charge and let him spend his time in educating the help, we believe that we would soon have a force of mechanics so that we could lend a certain number of trained men to the Government without any difficulty.

At the present time, I believe they have taken a large proportion of those mechanics who are in Class A-1, but it seems a hardship that they have to take married men due to the fact that they are trained mechanically when we have sufficient young, unskilled labor that can be trained and should be sent out first.

I think there is a great deal that might be said and a great deal of good work could be done in educating the garage men to train and educate the help they have. A great many times you will find a man on wash rack in a garage, doing the washing, whereas if he is taken and put to work on assembling or disassembling of cars with the help of a better mechanic he would soon become a better mechanic, yet they will allow him to shift from garage to garage as a washer and always be one.

I have found that the majority of men who know how to work nowadays are not afraid to work; what I mean is, men who will work from 8 o'clock in the morning until 6 o'clock at night—whether the boss has his back turned or not, are usually doing the "scrub" work of the shop while the better mechanics of the younger, more loafing kind, know nothing about "real work" and what it means to them or their employers.—D. W. Onan, Reinhard Bros. Co., Manufacturers.

Speed of Velie Roadster

Editor Motor World: I have a 1917 Velie Chummy roadster, Model 28, which I bought last April and have never been able to exceed a speed of 45 m.p.h. Would you please let me know what a car like that ought to do? I think it ought to do a little better than that. It has a tendency to overheat at that speed, which I think robs it of power. The high gear ratio in Motor World says 4.75-1. The motor is a six-cylinder Continental, 3¼ x 4½; Stromberg carbureter, 115 in. wheelbase and 32 x 4 tires.—William J. Lincaster, 23 Hill Street, Waterbury, Conn.

Answer—Trouble of this kind is generally due to air restriction. The car should readily do between 50 and 55 miles an hour with this gear ratio.

The fact that the engine tends to overheat at the higher speed indicates that it is either traveling on too rich a mixture or the spark is not advanced far enough. In correcting the trouble it would be well to work to both ends. That is, first see that there is nothing to restrict the volume of charge entering the cylinders, and second, see that the spark advance is far enough ahead at high speed. The spark should be so set that firing occurs on upper dead center in the full retard position.

In checking over for air restriction, first see that the high-speed adjustment is so set that plenty of air enters the carbureter when the throttle is open. Very often, also, trouble of this kind will occur due to a restriction in the gasoline line. When this trouble occurs it can generally be detected by spitting back into the carbureter when the throttle is wide open. As a general rule if overheating occurs and car will not throttle at higher speed, if there is no spitting back, the trouble can generally be checked up as retarded spark, too rich a mixture at high speed or a restriction in gas passages.

There have been many cases where the trouble you mention has been remedied by putting on a size larger carbureter.

Cause of Knock in Hudson Super-Six

Editor Motor World: Could you please tell me what causes the slight knock at camshaft in the Hudson Super Six at slow speed and how to remedy same? I notice that nearly every super has this same knock in a greater or less degree, and I have examined all camshaft bearings and valve push rods and end thrust spring, but they knock just the same, only at comparatively slow speed. This is very annoying and I would very much appreciate information on same.—Ernest W. Helbig, Aberdeen, Wis.

Answer—This may be due to either one of two causes—first, a worm pump shaft bushing, permitting end play in the camshaft, or, second, worn tappet guide. It is very probable that the first cause is the one which is giving you the trouble, as when a slight wear occurs in the pump shaft bushing it permits end play in the camshaft, which gives the rattling sound you refer to. The worn tappet guides are also possible.

Louisville Advertising Better

LOUISVILLE, April 20—As a possible indicator of the situation of the automobile trade in this section is the annual automobile number of the Louisville Courier-Journal which appeared Sunday, April 7. This carried 84½ columns of automobile advertising, whereas a year ago there were only 74. Also, this year there was no show because the armory is being used by the government and last year there was a show.



ARE YOU HELPING CLEAN UP?

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Repairshop Shortcuts

From Motor World Mechanics

NO. 1637—SPOTLIGHT BRACKET

A bracket for spotlight and mirror on sedans and closed cars is made of ¾ in. round iron about 18 in. long. The ends are bent, flattened and drilled and the bracket screwed to the body.—C. B. Smith, Nash Agency, Hollywood, Cal.

NO. 1638—FOR WORN TORSION RODS

This is a scheme for quieting torsion rods after the eyes get worn. Instead of tearing down the rod, reaming and rebushing, case hardened steel cones are made to fit the bolt, and one is placed each side of the rod eye, between it and the springs. The cones are reamed so that they will slide easily on the bolt.—H. Wirebaugh, Wilson Motor Car Co., Canton, Ohio.

NO. 1639—INSERTING VALVE-STEM PINS

By using 2½ x 3/16 in. cotter pins as pincers, with a cut-off eye of one for a binder, valve-stem pins may be easily inserted in holes that are difficult to get at. By bending ½ in. of the end at 45 deg., almost any angle can be reached and the holding power will be greatly increased by filing the split surface of the cotter with a triangular file, forming a sort of universal chuck.—T. E. Hogan, Waverley Garage, Waverley, Mass.

NO. 1640—PISTON JIG

A jig for setting up a number of pistons of the same size in a lathe for recutting the ring grooves is made from a piece of pipe a little larger than the piston, a locking pin to fit in the piston pin holes, a clamping piece to fit back of the pipe and an eye bolt made of ½-in. stock tapped on the end. The clamping piece is 3 in. longer than the diameter of the pipe and is drilled and tapped to receive the eye bolt. The piston is clamped to the pipe by passing the pin through the piston in hole and the eye bolt. The piston is then turned on its seat in the pipe until the flat stock comes against the back of the pipe, clamping the whole together. The pipe is left in the chuck until all the pistons have been cut.—Peter Gillespie, Glen Ridge Auto Co., Glen Ridge, N. J.

NO. 1641—MOVABLE BENCH LIGHTS

Drop lights over a bench or drafting table, arranged in a row, may be moved to any desired position by having two parallel wires strung above the benches supporting wooden cross bars with screw eyes in the ends. The eyes slide along the wires and drop lights may be suspended from any point on the bars.—W. R. Davis, Washington, D. C.

NO. 1642—GAS SAVER

A gas saver which turns down the gas when a soldering iron is lifted off the flame and turns it on again when the iron is put back on the fire. A cock is fitted in the gas pipe, the handle of which is fastened to a rod, the other end of which acts as a holder for the iron. It is held up and the gas closed off all except a pilot light till the weight of the iron pushes the rod down and so opens the gas cock.—F. R. Crocker, Acme Radiator Works, Salt Lake City, Utah.

NO. 1643—BATTERY LEVEL TESTER

A battery hydrometer can also be made to serve as an acid level tester by cutting a small hole in the rubber tube about ½ in. from the lower end. Acid can then only be drawn down to a level with the hole, when air comes in through the hole.—H. K. Mayer, Morris Motor Co., Fort Collins, Col.

NO. 1644—PORTABLE PRESS.

A portable garage press is made by constructing a frame of 3 x ¾ in. steel bars, the uprights having holes bored every 6 in., so that the horizontal bar can be raised or lowered according to the work to be done. The jack is mounted upside down on the horizontal and the whole outfit mounted on casters so that it can be wheeled around the shop.—Karl Winter, Salt Lake City, Utah.

NO. 1645—RADIUS ROD BENDING IRON

A bending iron for Ford front radius rods is made from an old drive shaft by bending a hook on one end to go over the radius rod and then bending at right angles again 4¼ in. from the hook.—Fred J. Long, Massillon, Ohio.

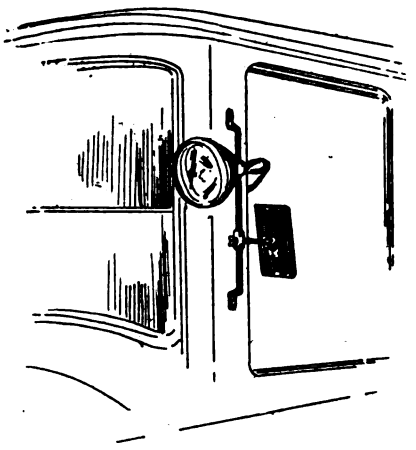
Milwaukee Quota 90 Per Cent Subscribed

MILWAUKEE, April 22—By the splendid aid given by the manufacturers and dealers in motor vehicles and parts, the Milwaukee campaign in behalf of the third Liberty loan is already a success. The city's quota is $14,600,000 and of this amount 90 per cent already has been subscribed, insuring a generous oversubscription, as during the first two loan campaigns. Among the largest subscribers among manufacturers and dealers are the following: A. O. Smith Corp., Cutler-Hammer Mfg. Co. and Chain Belt Co., $100,000 each; Sivyer Steel Casting Co., $25,000; LeRoi Co., motors, $20,000; National Enameling & Stamping Co., $25,000; Wadhams Oil Co., $10,000; Shadbolt & Boyd Iron Co., accessory jobber, $13,000. A large number of subscriptions from this group have not yet been officially reported.

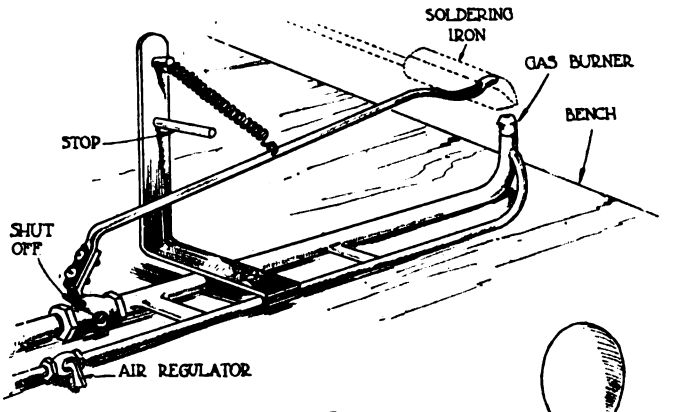
$1 a Shortcut

SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. MOTOR WORLD *will pay* $1 *for each Repairshop Shortcut that is accepted for publication. The only requirements are these:* 1—*Describe the shortcut briefly but clearly, in few words.* 2—*Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job.* 3—*Write on ONE side of the paper only.* 4—*Sign your name and initials, the name of the company your are with, and the town. Write plainly. If your name is unusual, or if there might be any doubt as to the spelling of the name, print it in capital letters with your pencil.*

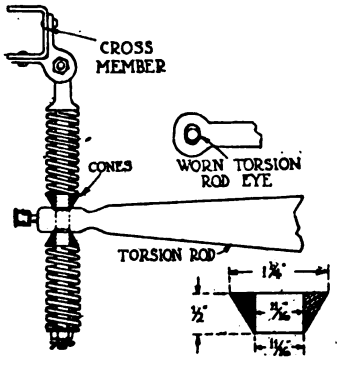
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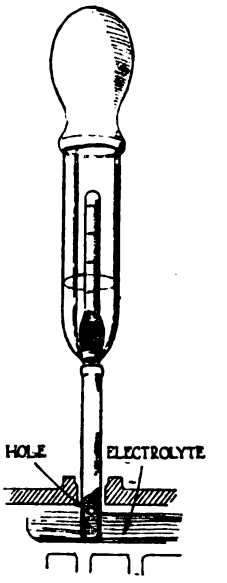
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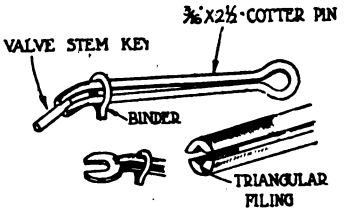
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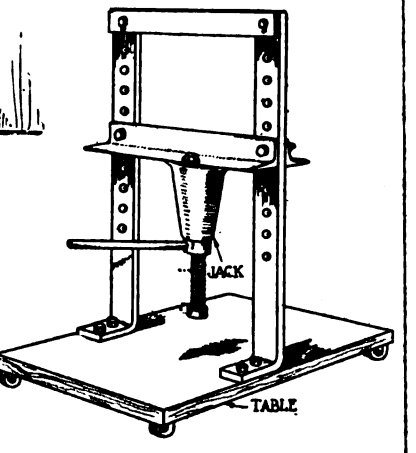
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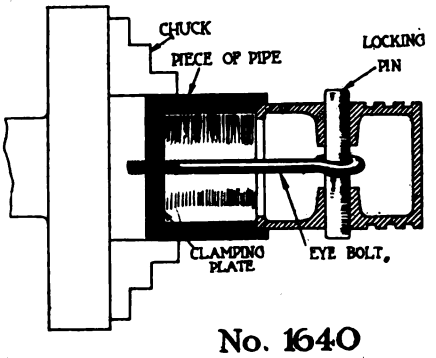
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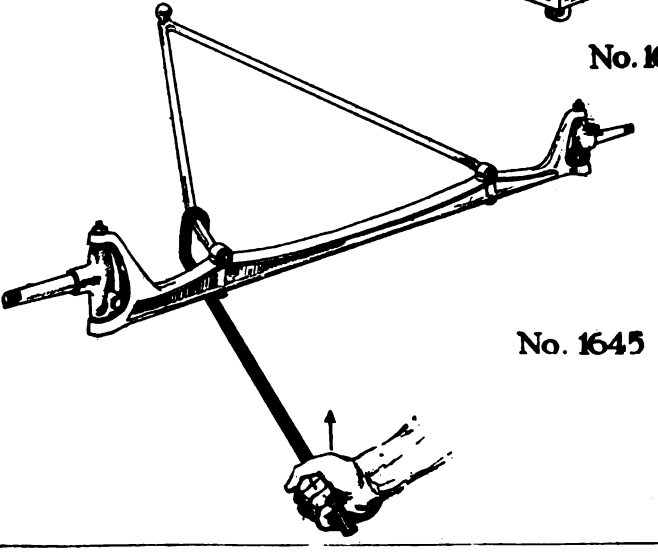
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How to Lay Out a Building—2

THIS is the second of a series of articles which take up in detail the layout and arrangement of buildings for the dealer, garage and repairshop.—Editor.

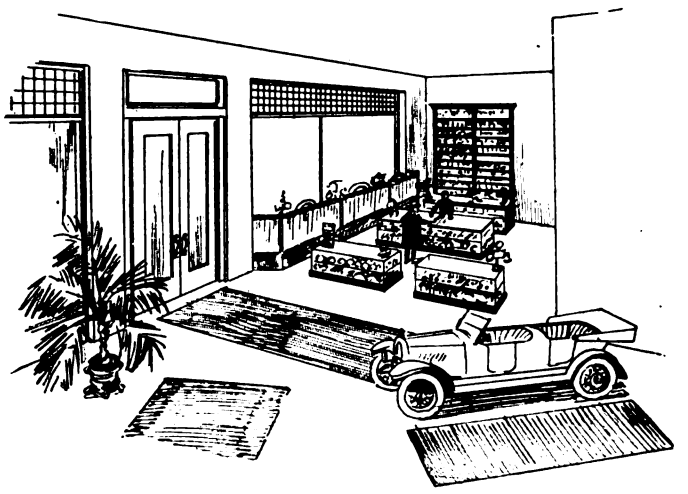


Fig. 4—One attractive arrangement which may be used if the placing of the store in a separate room is not desired. The store is situated in an ell at one side of the showroom, to the rear is the stockroom. This layout offers the same advantages obtainable by combining cars and accessories in one room, yet the store is a distinct unit

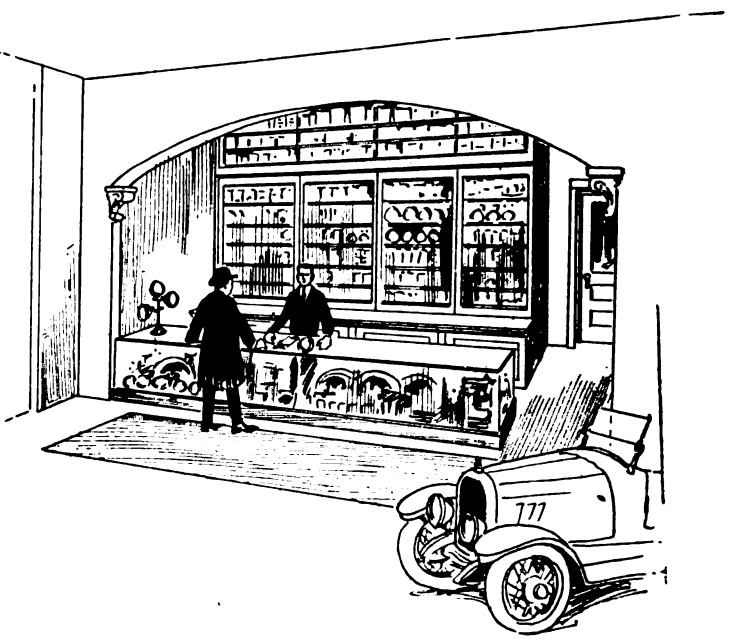


Fig. 5—Another happy solution of the problem of combining car and accessory departments. The store is placed in an alcove opening into the showroom. The broad showcase extending across the alcove serves to make the two departments distinct, yet for all practical purposes they are one. This arrangement may be used either at the side or the rear

By Harold F. Blanchard

Figs. 3 to 10 inclusive

SPECIFICATIONS: Plot, 50 x 100; showroom for two cars; small accessory store; office; toilets; garage for 12 cars; shop for five cars, with lavatory and locker room; tool room, and three machine tools.

Plan No. 1

THIS plan, Fig. 3, is intended for the small-town dealer. The showroom is designed for two cars, which is an absolute minimum, though most dealers would want more; the accessory store is rather small; and the shop is also modest. It will hold five cars but there is no provision for extra rooms for welding, vulcanizing, etc.

There are office toilets for men and women and a shop toilet. There is one small office only. To sum up, this plant is for the dealer who feels that the volume of his business warrants minimum building equipment only.

The location of the entrance and the position of the accessory store are typical of all the plans, and inasmuch as there is great difference of opinions on these two points it is desirable to thrash them out before proceeding further.

Usually there are no real advantages in placing the entrance in the center. Perhaps the biggest arguments in its favor are that it gives a more symmetrical building and that it conserves aisle space in the garage, but a glance at the plan in Fig. 3 will show that placing the entrance at the side really does not waste very much space.

The adv .ntages in placing the entrance at the side are many. In the first place the showroom, accessory store, offices, etc., are a unit and should be kept so. The extreme desirability of keeping this unit intact will be plainer when, later on, more is said about the unit idea.

It is certainly desirable to have showroom, accessory store and offices convenient to each other—the fewer steps between them the better. Therefore to have them divided by a driveway is poor practice. Many small-town dealers insist upon having accessories and cars in the same room so that one man can look after both when necessary.

This cannot be done if there is a driveway between. It is almost equally out of the question to put showroom and store on the same side of the driveway, inasmuch as there is not room; certainly there is no room for a display window. In fact, a side driveway is almost necessary in order to efficiently use the window space. Half the frontage less half the drive width is not enough to display a car in, and relatively this amount of window surface is more than required for accessory purposes. This discussion, of course, applies particularly to plots 40 to 50 ft. wide.

There are some who insist upon having showroom and accessory store as far apart as possible so that the customers to the one shall not disturb the prospects in the other. It is going too far, however, to place a driveway between. The

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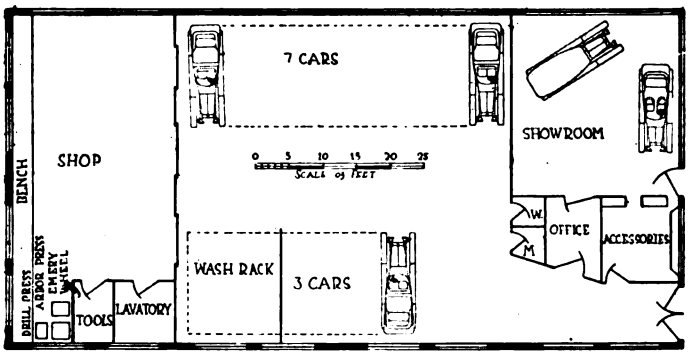


Fig. 8—This plan, providing a showroom for two cars, is for a dealer in a small town

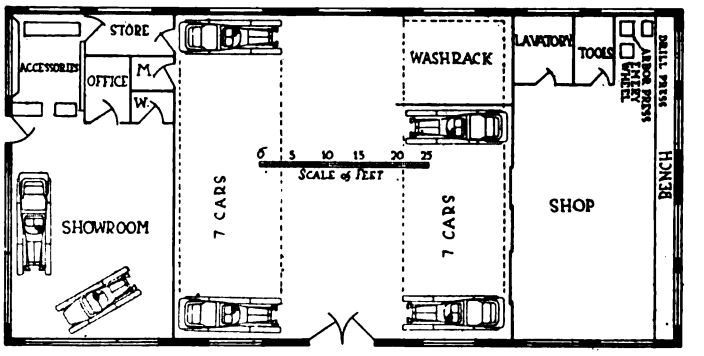
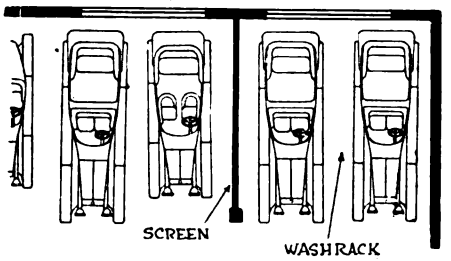
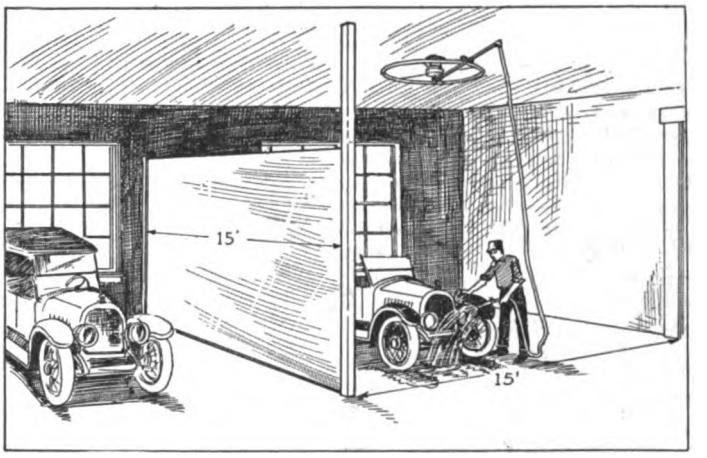


Fig. 10—This shows the same plan slightly modified so as to fit a corner location

Fig. 6—Right—To prevent cars being spattered, there should be a curtain for the wash rack

Fig. 7—Lower—When not being used, the wash rack holds two cars





fact that there are advantages in having the two so widely separated should convince those who still believe in a combined showroom and accessory store of the error of their ideas.

It seems hardly necessary to call attention to undesirability of going out of doors or running the risk of being run over by a car in order to pass from one department to the other.

Summing up all these reasons it is plain that the place for the driveway in a building of ordinary size is at the side.

The other mooted question, whether the accessory store should be integral or separate from the showroom, has been partly answered affirmatively by the preceding discussion, but this may be said in addition:

The store should unquestionably be a separate room, but for the sake of those who hold that it should be intimately connected with the showroom, several layouts have been so made. In every case, however, the store has been made as distinct from the showroom as is possible under the circumstances.

The best way to combine the two is to put the accessory store in an alcove, either directly back of the accessory display window, Fig. 4, or at some other point, Fig. 5. A showcase or showcases may be used to separate the two rooms without interfering with the ease with which one man may look after both departments.

The advantages of a separate accessory store are well summed up by a Motor World subscriber, Roy T. Sprague, Fowlerville, Mich., who says:

"When a salesman is talking to a prospect we do not want his attention called to tire troubles and all the other troubles which are handled in the office and accessory store side. I want storage customers and people whose cars are in for repair to pass through or wait in the accessory store where they will see what we have to sell. I want the man who is buying a car away from all that, with nothing to distract his attention."

Placing the store in an alcove does not obviate this objection but it does improve the appearance of both showroom and store, because one of the most important reasons for separating them is that they do not look well together. No man would think of trying to combine showroom and shop, even though the latter were clean and attractive. They simply don't go together and that is all there is to it.

Then, too, the shop is noisy. The same arguments hold regarding showroom and store, although naturally the objections are not so great.

Car customers will be distracted and interrupted by transactions in the accessory store. One of the main reasons for having a showroom is to enable the salesman to work at 100 per cent efficiency, to have his every effort register the full count in its effect on the prospect, and to a degree the accessory store defeats this purpose.

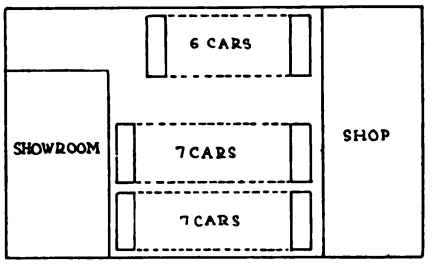
Having fully discussed the reasons for driveway and accessory store location let us return to an examination of the plan.

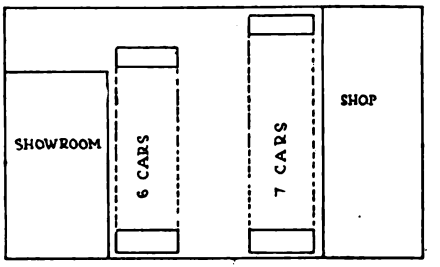
The showroom is an unbroken rectangle amply large enough for two cars but not of sufficient size to accommodate three without spoiling the effect. Entrance from the street is through a single door. Cars are introduced in the showroom through a sliding door opening into the garage. The small front door is desirable because it conserves the window display space.

The store is separated from the showroom by two showcases. There are shelves around the walls and another showcase in the room.

There is a single office large enough for two or three desks.

(*Continued on page* 104)





Figs. 8 and 9—Two arrangements of cars in a garage, making best use of the space available

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The RETAIL NEWS

NORTHWEST

O. W. Shaffer, Atlantic, Iowa, has bought the half interest of W. H. Wagner, Jr., in the White Pole Garage. William Briggs, who was owner of the repairshop in the same garage, has sold this to Wagner & Shaffer.

Grant Hendricks, Bentley, Iowa, has bought the garage of Rudolph Kay.

J. Gibson, Clarinda, Iowa, has bought the E. Dugan Garage.

E. N. Maxfield, Council Bluffs, has bought an interest in the Auto Sales Co.

M. L. Blair Motor Co., Council Bluffs, has moved to Automobile Row, taking quarters at 2417 Farnam Street. The firm handles the McFarlan and Empire for Wyoming, Nebraska and western Iowa.

Ted Himgenberg, Emerson, Iowa, has bought the garage of F. F. Brehm.

J. W. Hall, Greenfield, Iowa, has bought the West Side Garage from Lampher & Dory.

The Jensen Auto Co., Graettinger, Iowa, has bought the Geil Auto Co.

Fred Russell, Greenfield, Iowa, has bought the interest of his partner, Forest Law, in the Russell & Law Auto Supply Shop.

Cedric Barnes has sold his interest in the garage at Grinnell, Iowa.

Henry E. Selle, Kellogg, Iowa, has bought the Hill Bros. Garage.

Rolland Skinner, Lytton, Iowa, has opened a repairshop.

Kohn Leitzen, Mapleton, Iowa, has bought the City Garage from Lester Patrich.

The Ruble Garage, Merengo, Iowa, has been consolidated with Willenbrock & Simmons.

J. L. Curtis, New Market, Iowa, has bought the interest of his partner in the Reilly & Curtis Auto Co.

W. N. Wesp, New Hampton, Iowa, has sold his interest in the Wesp Motor Co. to Frank P. Wentz, Arthur Wesp and C. F. Chaney.

H. Enger, Ottumwa, Iowa, has opened a salesroom in Sigourney and will handle the Buick.

Perkins & Co., Pisgah, Iowa, have bought the K. T. Garage stock from Will Mobley.

H. L. W. Meyer, Schaller, Iowa, has bought the Woodke Garage.

C. W. Beeler, Sibley, Iowa, has purchased an interest in the Fairview Motor Co.

Ted Watson, Albion, Neb., has opened the Albion Auto Repair Co.

Richard Ulrich, Battle Creek, Neb., has bought a half interest in the garage of J. M. Lederer.

John Kasparek, Brainard, Neb., has bought the Ford garage.

Charles Munsey, Broadwater, Neb., has bought the interest of R. C. Duelin in the Broadwater Garage.

W. T. Moore, Broken Bow, Neb., has opened a repairshop.

W. T. Headly and E. H. Kolbo, Callaway, Neb., have bought the Callaway Auto Repairshop.

Dale & Fink, Elgin, Neb., have opened a repairshop.

Harry Vaughn, Fairbury, Neb., has bought the interest of his partner in the Fairbury Garage.

Harry Vaughn, Fairbury, Neb., has bought his partner's interest in the Whittet Traeger Auto Co.

Roy McCaslin, Fairbury, Neb., has moved his tire repairshop into a new building.

Will Dana and O. Juhnke, Fairbury, Neb., have leased the T. L. Vaughn Garage.

M. A. Beamish, Gering, Neb., has opened a repairshop.

Ayres Brashear, Gering, Neb., has sold his garage to Meynard & Frey.

Jake Cone, Gordon, Neb., has bought the automobile business and garage of Havener & Son.

Herman Warner, Gretna, Neb., has opened a repairshop.

Macrum & Lester, Haigler, Neb., have bought the Burlington Highway Garage of A. J. Archer.

Harry Stevens, Hartington, Neb., has bought a half interest in the Elite Garage, which now changes its name to the Duman & Stevens Garage.

R. A. Jenkins, Johnson, Neb., has bought the South Side Garage from E. P. Rodysill.

E. C. Brown, Morrill, Neb., has bought the Up-to-Date Garage.

John Hall, Madison, Neb., has sold his garage to F. Haas.

A. C. Chase, Mason City, Neb., has bought the Stone Garage.

Klugman & Koenign, Nebraska City, Neb., have bought the Motor Inn from Mapes & Co.

E. J. Von Glern, Nebraska City, Neb., has bought an interest in the E. L. Pratt Auto Co.

Nebraska White Co., Omaha, Neb., has moved to 1407 Capitol Avenue.

Phillip Parker, Orchard, Neb., has bought the garage of Weber & Co.

C. G. Timm, Osceola, Neb., has bought the stock and business of the Nebraska Tire & Tube Co.

C. F. Schauppner, Plainview, Neb., has opened a tire repairshop.

T. Amick, Plattsmouth, Neb., has bought the Fropet Garage.

A. Langmann, Potter, Neb., has bought the Lincoln Highway Garage from J. Spitzbart.

J. A. Thraikill, Raymond, Neb., has bought his son's interest in the Raymond Auto Co. Garage.

Orley Prather, Reynolds, Neb., has bought the Reynolds Garage from V. A. Jay.

E. C. Brown, Scottsbluff, Neb., has bought the Up-to-Date Garage.

Frank Nolan, Sidney, Neb., has leased quarters in the Bentley Building, and will occupy the place with a tire service station and car storage.

F. C. Greiss, Shickley, Neb., has bought the garage of Charles Bergquist.

Dach Carter & Sons, Stapleton, Neb., has bought the garage of N. C. Bowen, Brady, Neb.

F. V. Lowe, Steele City, Neb., has opened a repairshop.

Andrew Chartraw, Sumner, Neb., has bought the Goodwin Garage.

Gates & Son, Staplehurst, Neb., have bought the garage of Frank Osteslole at Thayer, Neb.

L. C. Bates, Thayer, Neb., has bought the garage of Frank Osterlon.

Anton Stave, Wahoo, Neb., has opened a repairshop.

J. R. McCowan, York, Neb., has leased quarters in the Heisler Building and will open a repairshop.

E. S. Wagner, Fargo, N. D., has bought the Murphy-Palmer Motor Co. Garage.

Nels Kloster, Forest Lake, Minn., has bought the United Motor Co. Garage.

J. T. & J. A. Shenk, Garden City, N. D., have bought the automobile business of G. Olson.

Charles Langworthy and R. Nicholson, Lynd, Minn., have bought the Lynd Garage.

J. G. Renden, Manfred, N. D., has bought the Martin Melby Garage.

Barney Johnson, Minot, N. D., has bought the equipment of the Bert Kuehl Garage and Repairshop, Milbank, S. D.

L. C. Eby, Minot, N. D., will continue the automobile business of Eby & Young, who dissolved partnership.

Frank George, Milnor, N. D., has leased his vulcanizing plant to John Edison, New Mills, Minn.

E. P. Nelson, Portal, N. D., has leased the garage of the C. E. Implement Co.

Dondelinger & Seitzer, St. Peter, Minn., has bought the Motor Inn Garage from Paul Guertin.

P. H. Harrington, Slayton, Minn., has bought the Murray Auto Co. from J. A. Cajacob.

P. A. LaFleur, Towner, N. D., has bought the F. J. Siefert interest in the City Garage.

Green & Ehret, Tyler, Minn., has bought the South Side Garage from Fred Bisballe.

Edw. Wolf, Wishek, N. D., has bought the Wishek Garage from Adam Miller.

W. C. Nissen, Brookings, S. D., has bought the Motor Inn from C. A. Johnson & Son.

Jacob Zoerb, Eureka, S. D., has bought the interest of his partner, Stephen Harrison, in the Eureka Garage.

Miller Bros. Garage, Lake Andes, S. D., has been sold to Frank Blaha, Ravinia, S. D.

Alfred Halverson, Vermillion, S. D., has bought the interest of J. G. Funston in the Funston Garage.

New Garages

The Automobile Laundry.....Des Moines
Schleuter Brothers. .....Dubuque
Indian Petroleum Co.....Newton, Iowa
J. B. Rembaugh.....Denison, Iowa
J. L. Berry.....Eddyville, Iowa
Kentzel & Sievert.....Galva, Iowa
Biederman Brother.....Mt. Vernon, Iowa
Frank Clouse .....Manson, Iowa
J. L. Crawford.....New Hampton, Iowa
Rockwell City Auto Co..Rockwell City, Iowa
J. Matson.....Ada, Minn.
Northern Service Co.....Aitkin, Minn.
Lew Stinson.....Aldrich, Minn.
L. C. & Geo. Smith.....Browerville, Minn.
C. E. Morse.....Detroit, Minn.
Peter Schnitz.....Frasee, Minn.
Mattson Bros. .....Grafton, N. D.
L. P. Greener (addition)..Grey Eagle, Minn.
LaMoure Garage (addition)..LaMoure, N. D.
J. H. Roth & Son (addition).....
.....Lamberton, Minn.
H. H. Hewitt.....Minto, N. D.
Paul Perkins.....Pine City, Minn.
Carl Mobrasten.....Sargeant, Minn.
H. F. Hansen.....St. Hilaire, Minn.
Ellis Machine Co.....Rochester, Minn.
Holen & Austin.....Upham, N. D.
Bria & Anderson.....Sawyer, N. D.
J. Bitterman.....Zap, N. D.
Emil Nelson .....Worthington, Minn.
Albion Independent Oil Co.....Albion, Neb.
Albert Hansen.....Brunswick, Neb.
L. J. Kritner.....Crab Orchard, Neb.
Machurek & Venderkolk....David City, Neb.

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J. O. Geil.....Elk Creek, Neb.
Evans Motor Co.....Early, Neb.
M. A. Beamish.....Gering, Neb.
Arnold Brothers.....Harbine, Neb.
Charles Eby.....Hartington, Neb.
Adam Waldschmidt.....Hartington, Neb.
Trumbull Auto & Electric Co..Harvard, Neb.
Griffith & Schram.....Laurel, Neb.
W. H. Westphall.....North Loup, Neb.
John Zimmerer.....Utica, Neb.
E. F. Nelson Auto Co.....Aberdeen, S. D.
Galentine & Hawthorne..Buffalo Gap, S. D.
W. M. Harris.....Lake Creston, S. D.
Aug. Burmeister.....Leola, S. D.
Black Hills Auto Co.....Pierre, S. D.
Harms-Neilsen Motor Co..Sioux Falls, S. D.
F. J. Watson.....Sioux Falls, S. D.

SOUTHWEST

R. E. Goure, Abilene, Kan., has bought the Abilene Vulcanizing Tire Shop.

F. R. Dunlavy, Anthony, Kan., has bought the Bosc Auto Co. repairshop.

The Smith Motor Co., Athens, Kan., will move soon to its new building. The firm is composed of W. B. Hinter, A. P. and H. E. Smith.

Lewis P. Atherton, Augusta, Kan., has opened a vulcanizing plant here.

The J. W. Handy Motor Co., Augusta, Kan., has moved to new quarters in the Frisco Building.

Cobine Bros., Baxter Springs, Kan., have opened a supply company.

H. M. Hosey, Buffalo, Kan., has opened the Buffalo Motor Co.

Johnston Bros., Canton, Kan., have bought the Santa Fe Garage.

Wm. Lawless and Dee Hoel, Cottonwood Falls, Kan., have bought the repairshop of the Ford Garage.

Wm. Johnson and H. N. Johnson, Canton, Kan., have bought the Santa Fe Garage.

Ira McConaughey, Deerfield, Kan., has bought Ray Buell's interest in the local garage.

Gutjahr & Pinyerd, Denton, Kan., have bought the garage of W. G. Denton.

Harry Ellis, Elgin, Kan., has bought a half interest in the C. D. Thompson Garage.

H. F. Bruhn, Herndon, Kan., together with Anthony Weishapl, has bought the Herndon Garage from the Atwood Mercantile Co.

A. F. Sandow, Hope, Kan., has taken over the storage battery business of the Stegeman Garage.

The H. & D. Auto Supply & Storage Co., Hutchinson, Kan., has opened at 418 North Main Street.

O. F. Krueger, Natoma, Kan., has opened an automobile supply company.

R. O. Gresham, Oxford, Kan., has sold the Ford Garage to Harry Bumgardner.

C. W. Weston & Son, Phillipsburg, Kan., have bought out the battery and automobile service station of McKenzie & Jacobs.

A. J. Cleveland, Salina, Kan., proprietor of the Salina Automobile Co., has retired and sold his business to A. E. Kirk, H. H. Matthews and H. E. Weinle.

Gene Weisenborn, Sterling, Kan., has opened a repairshop.

Walter Hendricks, Wellington, Kan., has bought the Motor-Inn from E. G. Kelly.

The People's Auto & Storage Co., Wichita, Kan., has opened in its new building at 311 South Topeka Avenue.

R. King, Woodlawn, Kan., has bought his brother's interest in the local garage.

Jerry Hughes, Aurora, Mo., has sold his interest in the Williams & Hughes Motor Co. to his partner.

David Damon, Carthage, Mo., has bought a half interest in the Tiler & Damon Garage.

The Progressive Tire Corp., Joplin, Mo., has bought the Lynch Speedway Tire Co.

P. C. Houchins, Madison, Mo., has bought the garage of B. H. Crim.

L. W. Steinback, Prairie Hill, Mo., has discontinued his garage.

J. E. Wells, St. Clair, Mo., has sold his business to Smith & Whitsett.

McLendon & London, Antlers, Okla., have bought the garage of L. U. Bennett.

G. E. Harris and A. S. Dewey, Bixby, Okla., have bought the O. K. Garage.

Henry A. Potter, Chandler, Okla., will open a tire shop.

The Freeman Garage, Enid, Okla., has been sold by L. T. Freeman to Floyd Ames.

Ellis & Cotton, Granite, Okla., has bought the garage of T. M. Gassoway.

C. D. Lacy, Oklahoma City, Okla., has bought the interests of O. T. Ramos in the New State Motor Co.

Mabry Garage Co., Oklahoma City, has bought Happy's Garage.

The Sabine Vulcanizing Co., Orange, Tex., has been sold by Lance Russell and Chas. A. Russell, Sr., to W. L. Downey and P. M. Percy.

Downey & Percy, Orange, Tex., have bought the vulcanizing shop of Russell & Russell.

New Garages

W. A. Arsdale.....Gridley, Kan.
Thompson & Son.....Goodland, Kan.
Bruce Saunders.....Holton, Kan.
F. J. Brink.....Wichita, Kan.
Loren T. Hatten.....Westphalia, Kan.
M. N. & C. Kirkwood.....Girard, Kan.
Powers & Shigley.....Wichita, Kan.
Saunders Auto Co.....Holton, Kan.
Gene Weisenborn.....Sterling, Kan.
Haskins & Burnett.....Eskridge, Kan.
Hillside Garage Co.....Wichita, Kan.
Rumford & Lipp.....Leavenworth, Kan.
Roy L. Myers.....Blue Springs, Mo.
Harry Silvers.....Excelsior Springs, Mo.
Pickett & Arnold.....Princeton, Mo.
Sarcoxie Supply Co.....Sarcoxie, Mo.
Fasvold & Bruce.....Pacific, Mo.
P. I. Wilsey & Son.....Kahoka, Mo.
Elmer Lantz .....Stigler, Okla.
Cooper Garage Co. (addition)....Tulia, Tex.

PACIFIC COAST

V. E. Byers has purchased an interest in the Ford Garage, Dinuba, Cal.

The Howden Butler Co., Fresno, Cal., has opened salesrooms and a service station for Fageol and Grant trucks and Fageol tractors.

W. B. Irwin has bought the Hughes Hotel Garage, 950 H Street, Fresno, Cal.

J. A. Starkel, Fresno, Cal., has added an automobile repairshop and accessory store to his bicycle store.

The Lyons-Morgan Hardware Co., Fresno, Cal., has added a Goodyear tire service station.

A. P. Normart, Fresno, Cal., has opened the Valley Auto Wrecking Co.

Carl B. Melikian has added an automobile accessory department to his harness shop in Fresno, Cal.

Ham Brothers, Fresno, Cal., have opened salesrooms for Case cars.

The Fresno Auto Exchange has been opened at Fresno, Cal.

H. W. Thorkildsen and Ed Richards have formed the T. R. Tire & Rubber Co. at Fresno to specialize in Goodyear tires.

The Harbert Motor Sales Co., Stutz and Stephens dealer, has moved to 1333 Eye Street, Fresno, Cal.

Tupper & Hocker have opened a tire store in Fresno, Cal.

H. A. Seller Co. has opened a branch in Fresno, Cal., for the distribution of Signal and Koehler trucks.

Skaggs, Berg Co. has leased a new building at 835 Jay Street, Fresno, Cal., and has added the Grant.

C. A. Chamberlain, distributer of Dodge Brothers and Hudson cars, has erected a new building at Madera, Cal.

Brunner & Long have bought the Fireproof Garage, Madera, Cal.

E. Gilmer has bought the Madera Vulcanizing Works, Madera, Cal.

Thompson & Alderson have opened salesrooms at Merced, Cal., and will handle the Overland.

J. H. Clark Co., Kissel Kar dealer at Modesto, Cal., has leased a new building at 907 Eleventh Street.

Bagby & Mott have opened a Ford repairshop at Modesto, Cal.

W. E. Moncrief has purchased a half interest in the Parlier Garage, Parlier, Cal. The firm has been styled Page & Moncrief.

The De Vaux Motor Co. has opened a branch at Reedley, Cal.

M. J. Reynolds has opened salesrooms for Dodge Brothers and Chandler cars at Selma, Cal.

J. W. Lemmore has bought the O. K. Vulcanizing Works, Selma, Cal.

F. L. Foote and W. H. Schmidt have established a repairshop in Turlock, Cal., in connection with the Chevrolet agency.

The C. E. Ellsburg Co., Turlock, Cal., has opened salesrooms for the Stephens and Maxwell.

W. Shean has bought a half interest in the Overland agency at Turlock, Cal., from A. H. Simon. The firm is now styled Simon & Shean.

McMarmen & McPherson have reopened the St. Elmo Garage, Turlock, Cal.

A. H. Hooker & Son have leased the new Chevrolet salesrooms at Turlock, Cal.

Olson & Carson have opened salesrooms at Turlock, Cal., and will handle the Dodge Brothers car.

The Tire Repair Shop, Turlock, Cal., has moved from Broadway to North Main Street.

Charles S. Harper, Inc., Seattle, Willard battery representative, has established a new service station at Eastlake and Harvard Avenue.

The Western Truck & Tractor Co., Spokane, has moved to new quarters at 1201 Sprague Avenue.

T. G. Young Co. will move its Spokane office from Jefferson Street and Sprague Avenue to the Eastman Motor Car Co. Building.

Coming Events

Racing

Uniontown, Pa.....Uniontown Speedway Assn.....May 16
Sheepshead Bay, N. Y....Championship.....May 30
Chicago .....Chicago Speedway.....June 22
Cincinnati .....Cincinnati Speedway.....July 4

Conventions

Detroit, Mich.....World's Salesmanship Congress. Third Annual Session.....Apr. 24-27
Lima, O.....Ohio State Automobile Assn.....May 3-7
Hot Springs, Va.....Convention National Association of Automobile Accessory Jobbers.....June 5-12

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-62	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	1595	....	1595	2150	2150	....	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1145	1095	....	....	1395	....	....
AMERICAN																	
B	6-3½x5	23.4	G & D	Zenith	G & D	DD	3	122	32x4	SS	1645	1595	1695	....	....	....	....
ANDERSON																	
20	6-3½x4½	25.3	Conn	Zenith	Wsths	DP	3	120	33x4	SS	**1465	....	....	....	2165	....	....
400-F	6-3½x5½	29.4	Bosch	Stmbg	Wsths	DD	3	120	33x4	SS	**1925	....	....	....	....	....	....
APPERSON																	
8-18 8th Anniversary	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	34x4 / 32x4½	SS	†2550	....	2550 / 3500	....	....	....	....
AUBURN																	
6-39-B	6-3½x4½	25.3	Remy	Rafld	Remy	DP	3	120	34x4	SS	1345	1345	....	....	....	....	1595
6-44	6-3½x5½	29.4	Delco	Rafld	Delco	DP	3	131	35x4½	SS	....	1685	1685	....	2450	....	1985
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142	34x4½	QD	3750	3750	4000	4550	5000	5250	....
BELL																	
18	4-3½x4½	22.5	A.Kent	Zenith	Dyneto	D	3	114	32x3½	QD	†995	995	....	....	....	....	....
BIDDLE																	
H	4-3½x5½	22.5	Eisman	Zenith	G & D	DP	4	121	32x4	QD	2600	....	†2650	....	4100	4000	....
BOUR-DAVIS																	
18B	6-3½x5½	29.4	West.	Stmbg	West.	DP	3	118	33x4½	QD	....	1785	....	....	....	....	....
	4-3½x5½	22.5	West.	Rafld	West.	DP	3	118	32x4½	....	....	1680	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	5500	....	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3½x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	825	825	....	....	....	....	850
BUICK																	
E 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	1185	1845	....
E 44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	....	†1695	....	....	1265
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	125 / 132	35x5 / 34x4½	SS	2970	†2970	2970	....	3840	4160	....
CASE																	
U	6-3½x5½	29.4	Wsths	Rafld	Wsths	D	3	125	35x4½	SS	†1875	....	1875	....	**2275	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wsths	DP	3	117 / 122	32x4 / 34x4	SS	1565	1565	1615	1625	1950	2925	....
CHANDLER																	
	6-3½x5	29.4	Bosch	Rafld	Wsths	DP	3	123	34x4	SS	†1595	†1675	1595	2195	2295	2895	....
CHEVROLET																	
490	4-3½x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3½	C	660	685	....	....	1060	....	....
FA	4-3½x5½	21.7	Remy	Zenith	A-Lite	C	3	108	33x4	SS	935	935	....	....	1475	....	....
D	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	120	34x4	SS	1385	1385	....	....	....	....	....
COLE																	
870	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	33x5	SS	2395	†2395	2395	2495	2595 / 2795	....	....
COLUMBIA																	
C&D	6-3½x4½	25.3	A.Kent	Stmbg	W.Lnrd	DP	3	115	32x4	....	†1495	1450	....	....	2395	....	....
COMET																	
C-50	6-3½x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	....	....	....	1285	....	....	....	....
COMMONWEALTH																	
4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	115	32x3½	SS	†995	1095	....	....	....	....	....
CROW-ELKHART																	
CE-36	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114	32x3½	SS	995	995	....	1295	1395	....	....
CUNNINGHAM																	
	8-3½x5	45.0	Delco	Stmbg	West	D	3	132 / 142	35x5 / 37x5	....	....	4250 / 4750	....	....	....	....	....
DANIELS																	
B	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	3250	3250	3250	....	....	....	....
DAVIS																	
H, I, K	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1585	1585	....	1850	....	....
J, I	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	125	34x4½	....	....	1950	1950	....	....	....	....
DISPATCH																	
	4-3½x5	23.5	Bosch	Rafld	U.S.L.	CU	4	120	36x3½	QD	1150	....	1250	1400	1400	....	....

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	830	....	....	1095	....	....	865
B	6-3½x4½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	1050	1050	*1050	1650	1650	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3750	3700	3750	....	5180	5250	....
MAXWELL																	
25	4-3½x4½	21.0	A.Kent	K D	Simms	C	3	109	30x3½	C	‡825	825	....	....	1275	1275 / 1175	935
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wsths	DP	3	136	35x5	QD	3900	3900	3900	....	5000	5050	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3500	*3500	....	....	....	....	....
METZ																	
25	4-3½x4	24.0	A.Kent	A.W.T.	Wsths	F	.	106	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.3	Conn	Rafld	Splitdf	C	3	120	32x4	SS	1250	1250	....	1850	1950	....	300x
C-42	6-3½x5	29.4	Conn	Stmbg	Wsths	C	3	127	34x4	SS	‡1490	1510	1525	2135	2275	2850	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1650	1650	....	....	2280	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1985	....	1985	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	110	32x3½	SS	995	995	....	....	....	....	....
J	6-3½x4½	25.3	Conn	Stmbg	Dyneto	D	3	117	33x4	SS	1295	1295	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	31x3½	QD	565	‡635	....	....	965	....	....
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x3½	QD	....	995	....	....	1850	....	....
MOON																	
6-36	6-2½x4½	19.8	Delco	Titan	Wagner	DP	3	114	32x3½	SS	....	1295	....	....	....	....	....
6-66	6-3½x5½	29.4	Delco	Rafld	Delco	DD	3	125	35x4½	SS	†1985	....	1985	2650	2650	....	....
MOORE																	
30-E	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	106	30x3½	....	695	....	....	....	....	....	....
MURRAY																	
	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	....	2800	2800	2800	3600	....	4000	....
NASH																	
671	6-3½x4½	29.4	Delco	Rafld	Bijur	DP	3	125	34x4	SS	....	....	1465	....	....	....	....
681-683	6-3½x5	25.3	Delco	Marvel	Delco	P	3	121	34x4	SS	†1295	1295	....	....	1985	....	....
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafld	Wsths	C	3	128	34x4½	QDR	†2150	†2150	2150	2645	2820	....	....
Twelve	12-2½x4½	39.6	Delco	Rafld	Bijur	C	3	128	34x4½	QDR	†2750	†2750	2750	3345	3420	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	....	....	....
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1050	1050	....	1550	1550	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1495	....	....	....	....
37	6-2½x4½	18.9	Remy	Johnson	Remy	C	3	112	32x4	SS	†1195	1195	....	1595	1695	....	....
OLYMPIAN																	
	4-3½x4½	16.9	Conn	Stmbg	A-Lite	D	3	112	32x3½	....	†1085	1085	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	112	32x4	SS	†965	985	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Titan	A-Lite	C	3	104 / 106	31x4	C	835	850	†875	....	1340	....	....
85B6	6-3½x4½	25.3	.....	Titan	A-Lite	C	3	116	32x4	....	1195	1195	....	1420	1620	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.7						136			‡3950	‡3950	3950	....	....	5000	....
W-42	6-4 x5½	38.4	Bosch	Zenith	O-M	OM	6	142	35x5	SS	....	....	5300	....	6300	6300	....
PACKARD																	
3-35								136			....	....	4300	....	....	5850	....
3-25	12-3 x5	43.2	Delco	Own	Bijur	DD	3	128	35x5	QD	....	3950	3950	5300	....	5500	....
PAIGE																	
6-39	6-3½x5	23.4	Remy	Stmbg	G & D	D	3	117	32x4	SS	1395	1395	....	....	1925	....	....
6-55	6-3½x5½	29.4	Remy	Rafld	Remy	D	3	127	35x4½	SS	....	....	1870	2850	....	3230	....

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DIXIE FLYER																			
L835	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	†995	995	....	....	1375	....	....
DOBLE-DETROIT																			
	2-5 x4	....	Doble	Stmbg	Wagner	..	.	135	35x5	....	....	....	3750	....	....	....	....
DODGE BROTHERS																			
	4-3½x4½	24.0	Delco	Stewart	N.E.	D	3	114	{32x3½ 33x4	SS	885	885	....	1350	1350	....	....
DORRIS																			
6-80	6-4 x5	38.4	Bosch	Stmbg	Wsths	DD	3	122	33x5	SS	....	....	....	....	....	....	....
DORT																			
11	4-3½x5	19.6	Conn	Carter	Wsths	C	3	105	30x3½	QD	865	865	**1000	1265	1265	....	....
ELCAR																			
D.F.	4-3½x5	19.6	A.Kent	L-O	Dyneto	DP	3	116	{33x4 32x3½	SS	....	1095	1095	....	{1625 1795	....	....
	6-3½x4½	25.3	A.Kent	Stmbg	Dyneto	P	3	116	33x4	....	....	1295	1295	....	....	....	....
ELGIN																			
A	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	117	33x4	....	†1095	1095	....	....	**1645	....	....
EMPIRE																			
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS	1165	1125	....	....	....	....	....
70-A	6-3½x4½	25.3	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	....	1345	1375	....	....	....	....
73	.....	....	.....	.....	.....	..	.	...	....	....	....	†1360	....	....	....	....	....
FIAT																			
E-17	4-5½x6½	44.1	Bosch	Zenith	Wsths	D	4	140	35x5	QD	....	....	5500	....	....	6500	....
FORD																			
T	4-3½x4	22.5	Own	{Holly Kngstn	.....	D	2	100	30x3½r	C	435	450	....	650	785	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	33x4½	SS	2200	†2445	2445	2850	3050	3200	....
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	....
GRANT																			
G	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	114	32x3½	....	‡1095	1095	....	1575	1595	....	1350
HALLADAY																			
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS	‡1185	1150	....	....	....	....	....
R	6-3½x5	29.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS	1385	1385	....	....	....	....	....
HARROUN																			
	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....	....	895	....	....	....	....	....
HARVARD																			
4-30	4-3 x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	785	†985	....	....	....	....	....
HAYNES																			
38	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1850	....	....	....	....	....
39	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1950	....	1950	2660	....	....	....
44	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2910	....	2910	....	3460	....	....
HOLLIER																			
206	6-3½x4½	25.3	Remy	Stmbg	Splitdf	C	3	116	32x4	SS	....	1485	....	....	....	....	....
188	8-3 x4½	28.8	A.Kent	Stewart	Splitdf	C	3	116	34x4	SS	†1485	1485	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	34x4*	SS	....	†2050	1950	....	2750	3400	....
HUPMOBILE																			
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x4	....	1250	1250	....	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	950	1000	1025	....	....	....	....
JACKSON																			
349	8-3 x3½	28.8	A.Lite	Zenith	A-Lite	DP	3	118	34x4	SS	†1495	1495	1570	....	2195	....	....
JONES																			
26-AB	6-3½x5½	29.4	Remy	Rafid	Wsths	DP	3	125	34x4	SS	†1875	1875	1875	....	2750	....	....
JORDAN																			
J-60	6-3½x5½	29.4	Delco	Stmbg	Bijur	DD	3	127	35x4½	SS	1995	†1995	1995	....	2750	3500	....
KING																			
F	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	....	†2350	2150	....	**2950	....	....
KISSEL																			
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1495	1495	1585	1935	1935	....	1935
Double-6	12-2½x5	39.6	Delco	Stmbg	Own	DD	3	128	34x4½	....	1585	....	2450	....	2850	....	2850
KLINE																			
6-38	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1495	1495	†1495	....	2200	....	....
LEXINGTON																			
6-O	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	....	1385	....	....	1545	....	....
6-R	6-3½x4½	25.3	Conn	Rafid	Wsths	P	3	122	34x4	QD	....	1585	1585	....	1785	....	....
LIBERTY																			
10-B	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1385	1385	....	....	1925	....	....
LOCOMOBILE																			
E-38	6-4½x5	43.3	Berling	B & Ball	Wsths	DD	4	139	37x5	QD	†5150	*5000	5000	....	....	6300	....
E-48	6-4½x5½	48.6	Berling	B & Ball	Wsths	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7300	....
LOZIER																			
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	....	....	....
82	6-3½x6	36.0	Eisman	Rafid	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																			
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD	.	132	35x4½	SS	....	....	1650	....	....	....	....
MADISON																			
	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	{124 120	34x4	SS	†1485	1485	1485	....	....	....	....
PAN-AMERICAN																			
G-5	6-3½x5	38.4	G & D	Rafid	G & D	D	3	120	36x4½	SS	....	1650	....	1650	....	1950	....
PATERSON																			
6-45	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	120	32x4	C	†1295	1265	1295	....	**1795	....	....
PEERLESS																			
56	8-3½x5	33.8	A.Kent	B&Ball	A-Lite	DD	3	125	35x4½	SS	†2550	....	2550	2850	2990	3690	....
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	34x4½	QD	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60.0	Bosch	Own	Wsths	C	4	147½	36x5½	QD	†6400	6400	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	23.4	Delco	Titsn	Delco	DP	3	120	32x4	SS	†1395	1395	....	....	....	....	....
PREMIER																			
6-C	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	....	†2285	2285	....	....	....	....
PRINCESS																			
36-F	4-3½x4½	22.5	Splitdf	Schebler	Disco	D	3	108	32x3½	....	875	875	875	....	....	....	....
REGAL																			
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD	....	795	....	....	....	....	....
REO																			
	6-3 1/16x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	1550	1550	....	....	....	....
	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	120	34x4	SS	1225	1225	....	....	....	....	....
REVERE																			
	4-4½x6	30.6	Bosch	Stmbg	Bijur	DD	4	130	32x4½	....	....	....	....	....	....	....	....
ROAMER																			
C-6-54	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DP	3	128	32x4	SS	2350	†2250	2475	....	....	....	....
D-4-75	4-4 x6	25.6	Bosch	Stmbg	Bijur	DP	3	128	32x4½	SS	2950	....	3250	....	3950	....	....
ROSS																			
	8-3½x5	33.8	.....	.....	W.Lnrd	DD	3	130	35x4½	SS	‡1850	....	1850	....	....	....	....
SAXON																			
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	935	1045	....	1395	....	....	....
SAYERS																			
SIX-42	6-3½x4½	25.3	Delco	.....	Delco	P	3	118	32x4	....	....	1395	....	....	....	....	....
SCRIPPS-BOOTH																			
D&H	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1285	....	....	....	....	....	....
G	4-3 1/16x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	‡935	....	....	....	....	....	....
Six-39	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1195	1195	....	....	....	....	....
SIMPLEX																			
V	6-4½x6½	45.9	Eisman	Nwcmb	Bosch	D	4	143½	37x5r	QD	Chassis	7000	....	....	....	....	....
SINGER																			
	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	139	35x5	QD	4200	†4325	4100	....	5250	5125	....
STANDARD																			
G	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	....	†2450	....	2450	....	3500	4000	....
STANLEY																			
Steamer	2-4 x5	12.8	.....	.....	.....	..	.	130	35x4½	SS	....	†2750	2800	....	....	....	....
STEARNS																			
SK14	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS	†1935	1935	2175	2400	2575	3200	....
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	125	35x4½	SS	†2700	....	2700	3200	....	3875	....
STEPHENS																			
Salient Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	118	32x4	QD	1585	1585	†1650	....	2085	....	....
STUDEBAKER																			
SH-4-40	4-3½x5	19.6	Remy	B&Ball	Wagner	C	3	112	32x3½	SS	1050	995	....	....	1525	....	....
EH-6-50	6-3½x5	29.4	Remy	B&Ball	Wagner	C	3	119	32x4	SS	1450	1393	†1395	....	....	....	....
E-G-6	6-3½x5	36.0	Remy	B&Ball	Wagner	C	3	126	33x4½	....	....	1795	....	....	1950	....	....
STUTZ																			
S	4-4½x5	30.6	Bosch	Stmbg	Remy	C	3	{120 130	32x4½	SS	2550	†2650	*2750	....	....	....	....
SUN																			
17	6-3½x5	29.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	....	....	....	....
TEMPLAR																			
A-445	4-3½x5½	18.2	Remy	Zenith	Remy	P	3	118	32x4	SS	2385	2085	....	....	....	....	....
VELIE																			
38	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS	1340	1340	†1340	....	1885	....	....
39	6-3½x5½	29.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS	....	....	1595	....	....	....	....
WESTCOTT																			
S-18	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1890	1940	1940	**2790	**2790	....	....
WHITE																			
16-Valve	4-4½x5½	28.9	.....	Own	L-N	P	4	{124½ 137½	35x5	U	†5000	....	†5000	6050	6050	6200	....
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Titsn	A-Lite	C	3	121	34x4½	SS	....	....	1625	2275	2325	2425	....
88-8	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	125	34x4½	SS	†2550	....	2100	....	2800	2900	....
WILLYS																			
89-6	6-3½x5½	29.4	Conn	Titsn	A-Lite	C	3	120	33x4½	SS	†1450	....	1450	....	1330	....	....
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	3150	3150	3200	4150	4400	4400	....
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3850	3850	3850	4850	5100	5100	....
WOOD'S																			
Dual Power	4-2½x4	12.1	A.Kent	Stmbg	Own	Mag	.	124	35x4½	QD	....	....	....	2950	....	....	....

*6-passenger. †4-passenger. ‡3-passenger. t-town car.
**Convertible.

ABBREVIATIONS—"A. Kent" Atwater Kent, "A-Lite" Auto-Lite, "B. & Ball" Ball & Ball," "Conn" Connecticut, "G & D" Gray & Davis, "Eisman" Eisemann, "L-N" Leece-Neville, "N. E." North East, "Nwcmb" Newcomb, "O-M" Owen Magnetic, "Rafid" Rayfield, "Stmbg" Stromberg, "Splitdf" Splitdorf, "Titsn" Tillottson, "Wsths" Westinghouse, "W. Lnrd" Ward Leonard, "D" Disk, "DD" Dry Disk, "P" Plate, "DP" Dry Plate, "C" Cone, "F" Friction, "G" Gearless, "CU" Control Unit, "Mag" Magnetic, "SS" Straightside, "QD" Quick Detachable, "C" Clincher, "DC" Detachable Clincher, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers, . NOTE—37½x5½ r means that the rear tires are 37x5½ and the front are smaller. Detachable top, 300x, means $300 extra.

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New York State Jobbers Form an Association

Accessory Men Unite for Handling of Territorial Trade Problems and Co-operation with N. A. A. A. J.

ROCHESTER, N. Y., April 20—The jobbing interests of New York state yesterday organized themselves as the New York State Association of Automobile Accessory Jobbers. They are an adjunct of the National Association of Automobile Accessory Jobbers and were assisted in their organization by National Field Secretary George Fritz, who has helped form similar divisions in other parts of the country.

The officers are: President, C. S. Owen, Chapin-Owen Co., Rochester; secretary, E. T. Ball, Joseph Strauss & Son, Buffalo; treasurer, W. J. Davis, Davis-Brown Electric Co., Ithaca. The president named the following executive committee: C. S. Owen, Chapin-Owen Co., Rochester; E. T. Ball, Joseph Strauss & Son, Buffalo; W. J. Davis, Davis-Brown Electric Co., Ithaca; H. J. Rowerdink, W. H. Rowerdink & Son, Rochester; W. E. Foskett, Albany Hardware & Iron Co., Albany; Harrie R. Williams, A. J. Picard & Co., New York; R. Bundy, U. S. Rubber Co., Buffalo.

The companies represented at the organization meeting were: Joseph Strauss & Son, Buffalo; H. D. Taylor & Co., Buffalo; U. S. Rubber Co., Buffalo; W. H. Rowerdink & Son, Rochester; U. S. Rubber Co., Rochester; Chapin-Owen Co., Rochester; S. B. Roby Co., Rochester; U. S. Rubber Co., Syracuse; Lee Auto Supply Co., Syracuse; Barker, Rose & Clinton, Elmira; Davis-Brown Electric Co., Ithaca; Motor Car Equipment Co., New York; H. A. McRea & Co., Glens Falls; Farrell Auto Supply Co., Brooklyn.

Waterloo Holds An Opening

WATERLOO, IOWA, April 20—The Waterloo Dealers Association, consisting of every automobile and accessory dealer in the city, has just held a spring opening week. Each dealer put on his best clothes, showed his new models in his well-decorated salesroom and donated 5 per cent of his cash retail sales to the local Red Cross.

In addition each car dealer donated a used car, the accessory men donating tires, batteries and accessories, which were taken to a city park Saturday and sold for the benefit of the Red Cross.

The street parade, led by a brass band, consisted of ninety-six new cars, several trucks and fifteen used cars and each car containing several lady members of the Red Cross. The sale was a complete success, netting the Red Cross over $3,500.

In addition Waterloo dealers invited the Cedar Rapids dealers to be guests at a banquet, this to reciprocate to Cedar Rapids for their hospitality some months ago.

The Cedar Rapids dealers came seventy-eight strong with a brass band and after a street parade sat down to a special dinner with 198 automobile men at what was the livest entertainment ever staged in Waterloo. The Waterloo committee who put over the big events consisted of W. O. Campbell, Chairman, H. H. Henry, Ralph Cramer, B. E. Farrand and Harry Padden.

Pinkerton Heads Peoria

PEORIA, April 20—H. B. Pinkerton was re-elected president of the Peoria Automobile and Accessories Dealers' Assn. at the annual election. Pinkerton has been at the helm during the past 2 years. W. F. Johnston was named first vice-president, Robert H. Fitch, secretary, and Robert F. Graham, treasurer. All of the officers were re-elected. The following directors were elected at a recent session: Theodore Bass, Robert Fitch, W. F. Johnston, C. A. Porter and Howard Kinsey.

A dividend was declared as the result of the success of the 1918 exhibition and checks are being mailed the members by secretary Fitch. The Peoria dealers staged their own show at a great saving to themselves.

Close Los Angeles Ford Plant

LOS ANGELES, April 20—Owing to inability to get a sufficient supply of parts from the Detroit factory, the local assembly plant of the Ford Motor Co. has discontinued assembling cars here temporarily. The sales, service and accounting departments continue in operation. Approximately 80 employees were affected by the change. This territory is now being supplied from the San Francisco plant, the cars being shipped here ready for the road. It was stated at the plant to-day that as soon as a continued supply of assembly materials can be assured the former plan of operation will be put in effect again.

Old Tire Day Raises $628 for Red Cross

Denver Dealers and Owners Donate Useless Tires Amounting to 10,930 Lbs.

DENVER, April 20—The Denver Motor Club has just raised $628.48 for the Red Cross through a unique enterprise termed old-tire week. The event was originally planned for one day only, but bad weather and delayed reports from donors caused the committee in charge to extend the affair a few days longer. A goodly number of the club's more than 1200 city members responded with old tires, and many outsiders were enlisted in the project. Several members enthusiastically went out canvassing business concerns, while others donated trucks to go out after tires reported by telephone. The collection weighed 10,930 lb. Offers are still being made, and the club plans to repeat the performance near the close of the summer. All motorists are urged to save up their worn-out tires for the next fund.

Motor clubs and trades associations throughout the country are expected to adopt the plan. The idea was originated by E. R. Cumbe, motor club director, Federal tire dealer and a veteran in Denver's motor car industry.

Paddock Relinquishes Chalmers

NEWARK, N. J., April 19—The Paddock-Zusi Motor Car Co., which has had the Chalmers for about 10 years, has relinquished it to the De Cozen Motor Co., which also has the Maxwell. Paddock retains the Chevrolet. George Paddock, head of the Paddock-Zusi company, is considered the daddy of the row.



Here's part of the pile of old tires donated to the Red Cross by Denver dealers and owners. The sales realized $628.

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Six Companies Make Tire Price Advances

Fisk, Goodrich, Goodyear and Ajax Raise All Prices 10%—U. S. and Firestone Higher

NEW YORK, April 22—Six tire companies, Fisk, Goodrich, Goodyear, Ajax, Firestone and U. S., have advanced their tire prices 10 per cent and more. The first four companies have made a straight 10 per cent increase on pneumatics, solids and all products which they manufacture. Firestone is making a 10 per cent addition to its schedules on all but non-skid fabric tires which are from 12 to 15 per cent higher. United States has increased prices 10 per cent on plain, USCo. chain and all cord makes except the nobby. There is no advance on any of the nobby treads. U. S. red and gray tubes are also up 10 per cent. Other concerns predict a similar rise within the next few days. Following is the situation to-day:

Kelly-Springfield prices remain as before, but an increase of at least 10 per cent is expected shortly. It is believed that this will not be a straight increase on all goods, but will vary according to the product.

Empire tires are expected to go up 10 per cent within a few days, although no definite word to this effect has been received from the home office.

No increase is expected at the present time on Batavia and Nassau tires.

Republic tires are likely to be advanced any day from 10 to 15 per cent, but no notice of a change in schedules has been received.

Michelin tires will remain at their present quotations for a while, but new rates are expected to be introduced in the near future.

Cleveland Truck Men Organize

CLEVELAND, April 22—Permanent organization of the Cleveland Commercial Car Dealers' Association was effected at a meeting held Friday evening, April 19, at the headquarters of the Cleveland Automobile Club. The following officers and directors were elected: President, R. J. Schmunk, Peerless Motor Car Co.; vice-president, H. S. Norton, Packard-Cleveland Co.; secretary, G. K. Wadsworth, National Garage Co., GMC; treasurer, H. L. Schnider, Republic Motor Sales Co.; Fred P. Brand, president Fred P. Brand Co., Pierce-Arrow; L. K. Hays, The White Co.; J. Mertz, Kelly-Springfield; S. F. Selby, Motor Distributors Co., Selden, and Ben F. Hopkins, Grant Motor Truck Sales Co.

H. S. Norton talked on the aims and purposes of the return-loads bureau which is being organized, and which will operate from the traffic department of the Cleveland Chamber of Commerce. Arrangements have been made for cooperation among the Chamber of Commerce automobile club and truck dealers' organization to perfect the operation of the bureau, and Norton has been made chairman of the Chamber of Commerce's committee which will be in charge.

Women Attend Coast Tractor School

LOS ANGELES, April 20—The tractor school held recently at San Fernando, near here, had a total registration of 110 students taking the full course, including lectures and field demonstrations, and is said to have set a record for the size of its class of women.

Twenty-nine women and girls have learned the ins and outs of tractor management, including the complicated inside workings. Mrs. E. C. Ingham, principal of the school, points with pride to the persistence with which the 22 girls of the high school clung to the helm of Yuba and Bean and miniature Beanon over the rough courses of freshly broken fields where clouds of dust would have daunted less determined aspirants. Seven women, including several from Los Angeles, actively engaged in learning the man-and-horse displacing job.

Hundreds of persons watched the demonstrations on the school grounds and a 10-acre tract nearby. D. C. Clower, head of the agricultural department, and R. G. Millen, of the manual training department of the San Fernando high school, who had much to do with the success of the tractor school, feel that a gratifying work has been accomplished by the week's effort in the successful effort of arousing interest in the tractor for practical farm use.

No Sanction for Accessory Show

CHICAGO, April 22—Preparations for the accessory show on the Municipal Pier in September are going ahead despite the fact that the Motor and Accessory Manufacturers Association has declined to issue a sanction. It is stated that the Hardware Jobbers' Association may hold a convention in Chicago at the same time. This would tend to line this show up in opposition to the accessory show planned by the National Association of Automobile Accessory Jobbers in October, as there has been friction between the hardware and accessory jobbing organizations.

Kissel Drops One Model

HARTFORD, WIS., April 18—The Kissel Motor Car Co. of this city has discontinued the manufacture of its ¾-ton bevel-driven Flyer delivery vehicle. In its place it has added a new worm-driven 5-tonner called the Dreadnaught, with a chassis capacity, including the body, of 11,800 lbs.

When He Balks

When I get a prospect to the dotted line and he balks I want to know why. I listen to his whys, then show him where he is wrong. If I can convince him, he is sold.—R. Satterthwaite, Pacific Kissel Kar Branch, Seattle.

Not Even Snow Could Spoil Deadwood Show

Three-Foot Blizzard Keeps Doors Open Three Days Longer—Results Were Good

DEADWOOD, S. D., April 20—Deadwood, which can usually be depended upon to furnish entertainment or amusement far out of the ordinary, produced a 3-ft. snowstorm in the middle of automobile show week. The storm began Wednesday afternoon and by late Thursday night, when it ceased, 3 ft. of snow had tied up traffic in every direction. The result was that the show, instead of closing on Saturday night, April 20, as had been advertised, was continued into the following week, and covered Monday, Tuesday and Wednesday, April 22, 23 and 24.

When the show, which was the sixth annual affair, given under the auspices of the Deadwood Business Club opened on the afternoon of Tuesday, April 16, thirty-three cars and tractors, two motorcycles and any number of tire and accessory exhibits were in place.

Dealers were all highly pleased with the outlook and business transacted, and a large number of sales are reported, the first passenger car to be disposed of being an Apperson, four-passenger, six-cylinder roadster. Every dealer wanted to be represented again next year, and even before the show opened several had made reservations for space in the 1919 show. Deadwood is the center of a large territory, which includes a most prosperous agricultural section as well as a gold mining section of note. Its diversified resources make it uniformly prosperous.

While the show was held in the largest hall in the western part of South Dakota, the Deadwood Auditorium, with a floor 82 x 123, it was not large enough to accommodate the exhibits. The Nash and Studebaker cars were among those which could not get floor space, while several large dealers had been cut down in their space allotments so that the greatest possible number would have an opportunity to exhibit.

Attendance all the way through the show was the best which ever patronized the affair, with the exception of Thursday, when it stormed, and Friday, when the roads were not yet easily passable.

Col. George Pope Dies

HARTFORD, CONN., April 20—Col. George Pope, president of the National Assn. of Manufacturers, treasurer of the National Automobile Chamber of Commerce and formerly treasurer of the Pope Mfg. Co. of Hartford, died at his home here yesterday, in his seventy-fifth year.

Col. Pope had been connected with the Pope Mfg. Co. in various capacities since 1890, when he became president of the Hartford Cycle Co., a branch of the Pope Cycle Co., founded by his cousin, the

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late Col. Albert A. Pope. In 1899, when many bicycle interests were merged into the American Bicycle Co., George Pope was elected vice-president of the concern, and later president of the reorganized Pope Mfg. Co.

Col. Pope's first active interest in automobiles was in 1897, when his company put on the market several Columbia electric phaetons. He was at one time chairman of the Show Committee of the Association of Licensed Automobile Manufacturers and the Automobile Board of Trade. It was largely through his efforts that the early automobile shows were successful, and he had active charge of the work in the New York shows from 1903 to 1913. When the Electric Vehicle Manufacturers Assn. was formed in February, 1906, he was elected president.

Anti-Strike Agreement in Minnesota

ST. PAUL, April 22—The first wartime agreement to prevent strikes and lockouts has been made in Minnesota, thus insuring continuance of all work in automobile, truck and tractor factories, in garages, repairshops and other lines of activity affecting the motor trade. The agreement has been an order by the Minnesota Public Safety Commission. It is signed by heads of the State Federation of Labor and the Minnesota Employers' Association. All differences shall be referred to the State Board of Arbitration and, pending settlement, work shall not be interrupted.

Government Takes Bosch Plant

WASHINGTON, April 19—The Government has taken over the plants of the Bosch Magneto Co. at Springfield, Mass., and Plainfield, N. J., as the result of an investigation which showed the company was entirely enemy owned. Directors will be named by Alien Property Custodian Palmer to conduct the operations of the business. The Bosch plant at Plainfield was closed last October, and all the machinery except gas generators was taken out. About 400 persons had been employed in this plant.

Joseph A. Bower, head of the business department of the custodian of alien property, has been designated to represent the Government on the board of directors. The company has a capital of $25,000 and property valued at $7,000,000.

Grit in the Gasoline

WILMINGTON, DEL., April 22—Malicious persons, as yet unknown, but presumed to be German sympathizers, in view of the fact that so far they have directed their spleen toward officers of the military exemption boards here, have invented a new scheme for damaging automobiles, through the gasoline, which they have applied in such a subtle way as to baffle detection so far.

Some foreign substance, which was pronounced by Dr. Frank Roop Smith, a chemist, to be a mixture of chemicals and abrasive substance, was introduced into the oil feeding openings, and thus brought into contact with the whole lubricating system.

Savannah Show Draws From Entire Country

Four-Day Event Made Gala Occasion—Dealers Report Cars Selling Freely

SAVANNAH, GA., April 20—The automobile show held here April 17-20, under the auspices of the Savannah Automobile Trade Association, proved to be a great success, judging from the interest shown by the crowds that visited it. Thousands of people visited the show from the city and the surrounding country.

In proof of the value of the show as an advertising factor a number of machines were sold while on display. These were removed then and others put in their places. In the show were included complete lines of all kinds of accessories. These were shown by both local concerns and out-of-town factories.

The show was held in the Municipal Auditorium. The place was attractively decorated for the occasion. Flags of the Allies were strung in streamers all across the building. They also served as the background to the different exhibits.

Opening Night for Dealers

The opening night was a day for the automobile owners and dealers. The show opened Thursday night with an address by Mayor W. J. Pierpont on behalf of the city. Judge Peter W. Meldrim, of the Chatham County Superior Court, also made an address, and S. N. Harris, general chairman of the show, spoke on behalf of the automobile men.

The city and surrounding country made the four days' show a gala event. The country people showed as much or more interest than the city people did, and they came in large numbers from the smaller towns to look at the latest models of all kinds of machines, with a view of selling their present "John Henry" and purchasing a newer and better car.

The school children were admitted free Thursday afternoon providing they were accompanied by their parents. Many took advantage of this offer and the auditorium was crowded this afternoon.

Philadelphia Pushes Its Drive

PHILADELPHIA, April 20—The Philadelphia Automobile Trade Association in its first two weeks of the big drive for the Third Liberty Loan cleaned up in subscriptions a total of $973,750, but since these official figures have been posted on the huge scoreboard filling the wall space at one end of the dining room, $100,000 more has been signed for, making in all to date $1,073,750. The goal is $2,000,000.

Following is the tabulated result for the two weeks' official figures:

Group 3, W. B. McCullough, Chairman.

Trade A, Motor Cars—A. E. Maltby, chairman; W. A. Almy, vice chairman. Team 1: C. R. Cunliffe and A. M. Pollock, $67,900; Team 2: S. Stankowitch and S. R. Blocksom, $46,750; Team 3: C. W. Lloyd and H. L. Bogardus, $3,300; Team 4: E. G. Browning and J. J. Smith, $39,600; Team 5: E. W. Burnshaw, Jr., and O. W. Doolittle, $46,450; Team 6: Benjamin Hoffman and E. M. Bartlett, $55,400; Team 7: T. S. Johnston and H. B. Harper, $40,250; Team 8: W. G. Herbert and A. W. Lockwood, $52,750; Team 9: J. C. Bartlett and N. G. Wilson, $7,350; Team 10: A. W. LaRoche and G. P. Parker, $24,050.

Trade B, Tires—W. R. Walton, chairman; Garfield List and E. H. Fitch, vice chairmen. Total, $70,900.

Trade C, Accessories—G. B. Shearer, Jr., chairman; A. W. Stellwag, vice chairman. Total, $206,550.

Trade D—Joseph Haines, J. H. Flanagan, Frank Buhler and Albert Wunderlich, chairmen. Total, $161,950.

Trade E—Thomas Quirk, chairman. Total, $21,300.

Trades F and G—G. H. Taylor, chairman. Total, $76,550.

Following are some interesting isolated subscription figures for the Third Liberty Loan in the motor car and allied trades:

Hess-Bright Mfg. Co., $50,000, employees, $61,000; Atwater Kent Mfg. Works, $24,000, employees, $24,000; Standard Roller Bearing Co., employees, $75,000; Automobile Sales Corp., $50,000; Foss-Hughes Co., $30,000; Overland-Harper Co., $30,000; Thornton-Fuller Automobile Co., $25,000; United States Tire Co., $25,000; Studebaker Corp. employees, $25,000; Fanning, Mathis Co., $25,000; J. H. McCullough & Son, $10,000; Herbert Bros., $15,000.

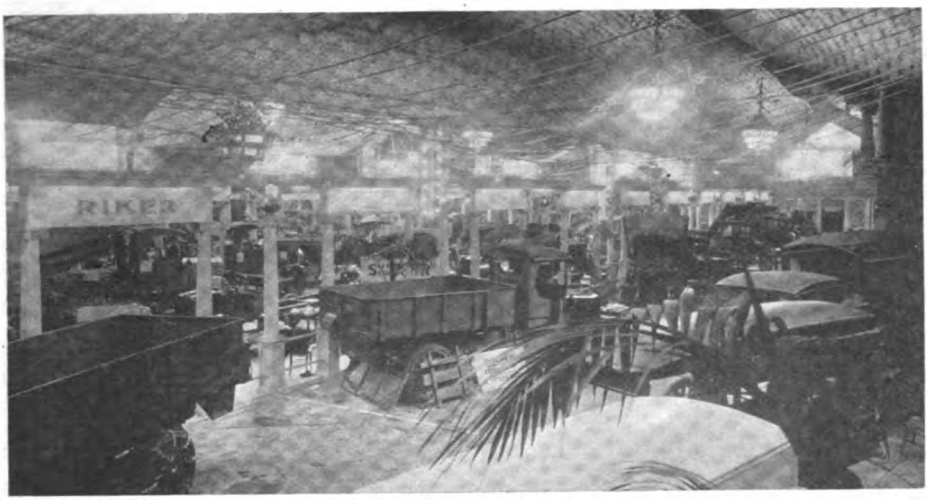
New York Trade Buys $28,400 Bonds

NEW YORK, April 19—A total of $28,400 worth of Liberty bonds was bought by the New York dealers at a meeting of the automobile and accessory trades held in the Automobile Club of America to-night. The audience at the rally was small but enthusiastic. Among the big contributors were: S. A. Miles, manager of the National Shows, $10,000; Alfred Reeves, general manager of the N. A. C. C., $3,000; H. P. Baran, H. P. Baran & Co., $5,000; Charles E. Reiss, Hupmobile dealer, $4,600; Frank White, Stewart-Warner, $1,200; Leon Jaffes, tire dealer, $1,000; William Allen, $1,000; Edward Korbell, publicity manager for the New York show, $400. Alfred Reeves spoke on what the automobile is doing to help the war. Sergeant Harold Wright of the French Flying Corps and the Lafayette Flying Corps gave a stereopticon talk. John C. Wetmore, automobile editor of the New York Evening Mail, led the drive for the Liberty bond sale. Charles M. Brown, president of the Automobile Dealers' Association, presided.

Crude Oil Production Increases

WASHINGTON, April 17—Production of crude oil during March was 176,000 barrels, more than twice as much as the February amount. This was also an increase of 50,000 barrels over March, 1917, and 20,000 over March, 1916. The number of completed wells for March this year was 1962 as compared with 1200 in February.

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Here is a view of Pittsburgh's first exclusive truck show, which has been pronounced a distinct success by exhibitors

Pittsburgh's Exclusive Truck Show a Success

Only Commercial Vehicles Shown in Motor Square Garden—To Be Repeated

PITTSBURGH, April 20—Sales aggregating several hundred thousand dollars give assurance that the motor truck show in Motor Square Garden, Pittsburgh, will become an annual institution. When the great exhibition opened Saturday night, April 6, Pittsburgh business interests were given the first opportunity to see assembled under one roof virtually every type of motor truck used for commercial purposes. Limited exhibits had been a feature of the semi-annual automobile shows, but this was different—a show devoted entirely to motor vehicles designed for utility. Among the one hundred exhibits representing forty-one different makes of trucks, business men found one or more types for every possible purpose for which commercial trucks are being used.

St. Louis Gathers 400 Volunteers

ST. LOUIS, April 23—More than 400 volunteers from Class 1A of the draft in Missouri, Iowa and Illinois have been gathered here for mechanical training for army service. All trades are to be taught, but the chief training will be in gasoline engine work, blacksmithing and carpentry. The instruction is given in Washington University, David Rankin, Jr., School of Mechanical Trades, Soldan and Central High Schools. The men are almost exclusively college and high school graduates, and are lodged in hotels leased by the Y. M. C. A., which institution has taken over their care.

New Coast Truck

SAN FRANCISCO, CAL., April 19—The De Martini Motor Truck Co. of this city is now offering four models of worm-driven trucks of 1, 2, 3 and 4-ton capacity. All four units are equipped with Buda engines, Brown-Lipe clutches and Brown-Lipe gearsets mounted in unit power plants, and Sheldon worm-driven rear axles. The 1-tonner has a 3¾ by 5⅛ engine, the 2-tonner a 3¾ by 5½, and the 3 and 4-tonners a 4¼ by 5½. In the chassis the 1-tonner sells at $2,250, the 2-ton unit at $2,750, the 3-tonner at $3,650, and the 4-ton model at $4250.

New Winther 1-Tonner

WINTHROP HARBOR, ILL., April 19—A new 1-ton internal-gear-driven truck has just been added to the Winther Motor Truck Co. of this city. The newcomer sells at $2,250 in the chassis, and is fitted with a Wisconsin 3¼ by 5 engine having a Borg & Beck dry-plate clutch, with a Brown-Lipe four-speed gearset mounted amidships and a Clark internal-gear-driven rear axle with the springs arranged to take the torque and propulsion on the Hotchkiss plan.

13 St. Louis Dealers Have Truck Agencies

Several Added Recently, and It Is Predicted Exclusive Car Agency Is Passing

ST. LOUIS, April 22—A recent census of the motor car dealers of this city shows that the following are additions to the ranks of truck dealers:

De Luxe Automobile Co., Bethlehem; Weber Implement & Automobile Co., Armleder; Welleng Motor Co., Gramm-Bernstein; Kardell Motor Co., Kelly-Springfield; J. W. Leigh Motors Co., Rainier; Cadillac Automobile Co., Knickerbocker; Briscoe Motor Sales Co., Redden; Mound City Buggy & Auto Co., Panhard and Defiance; Brandle Motors Co., Traffic.

The passenger car agencies of the Ford, Maxwell, Dodge and Grant cars all are selling trucks recently put on the market by the companies which make the passenger cars. It is predicted that it soon will be a novelty to see an exclusive passenger car agency.

Limit Rubber Shipping Space

WASHINGTON, April 22—It is understood that the Shipping Board has practically decided upon a definite curtailment in the amount of shipping space which will be permitted for the importation of rubber. This was practically decided following the hearing which was held in Washington last week between representatives of the Shipping Board and of the various large rubber consumers of the United States. The amount by which tonnage space will be limited has not been definitely established. It is stated that the complete plan of the shipping board will be made public within the next two weeks.



Hartford, too, had an entirely successful show, which, despite the martial air, was held in the armory

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Joseph P. Hall, formerly treasurer-director of the Combination Rubber Mfg. Co., Bloomfield, N. J., has been appointed general manager of the company.

George S. Shugart, formerly western sales manager of the United States Tire Co., New York, has been promoted to the position of manager of branches of the company, to succeed C. S. Tweedy, who resigned. Mr. Shugart has also been elected a director of the company.

Ralph ("Scotty") Lupton, who for some time has been a Wilmington, Del., accessory man, has enlisted in the army.

W. M. Tutt has been appointed sales and shop manager of the North State Motor Co., Greensboro, N. C. He was formerly associated with the Universal Auto Co. in the same city.

J. L. Hardin has been appointed office manager of the North State Motor Co., Greensboro, N. C.

A. W. Maire has been appointed manager of the Cleveland branch of the King Motor Car Co.

George Rumford, for many years general superintendent of the Oakland Avenue branch of the Maxwell Motor Co., Detroit, has resigned. His future plans are not announced.

F. G. Scott has left his position as sales manager of the Roedding Signal Light Co., Detroit, to join the colors.

Robert N. McCormick, general manager of the Hupmobile Sales Corporation of Philadelphia, severed his connection with that organization on April 15. He has not announced his plans for the future. His successor probably will be named within the next few days.

H. N. Cooke has been appointed Philadelphia representative of the Standard Fabric Co., Walpole, Mass.

J. F. Bowman has been elected vice-president and general manager of the Acason Motor Truck Co., Detroit. He formerly was vice-president and director of sales of the company. Prior to joining the Acason interests he was director of sales for the Federal Motor Truck Co. **H. A. Colon** has been appointed sales manager of the Acason Co. He was formerly assistant to Bowman in the Acason Co. and before that was assistant sales manager to Bowman at the Federal Co.

J. George Shaw, formerly president and treasurer of the Milwaukee Steel Foundry Co., Milwaukee, has organized the Shaw Foundry Co., which already is engaged in a large production of gray iron castings for the motor car and tractor trade.

J. V. Gilmour, Chicago, has been appointed assistant advertising manager of the Racine Rubber Co., Racine.

E. E. Smith, who represents the Shubert theatrical interests at Boston, has entered the motor field by buying an interest in the Scripps-Booth Motor Car Co. and taking on the New England distribution for the Sandow trucks. A lease has been taken of the building 3, 5, 7 and 9 Brighton Avenue, next door to the big Packard plant, and this will be used for a sales and service station. **J. V. Schenck,** who has been in charge of the Scripps-Booth sales, will be sales manager of the new combine.

Thomas O'Neil, formerly of the Hercules Gas Engine Co., Evansville, Ind., has been appointed assistant general manager of the Worthington Pump & Machinery Corp.'s big gas engine works at Cudahy, Milwaukee County. He succeeds George W. Thexton, who has gone to the Bucyrus Co., South Milwaukee, as works manager.

Record Birmingham Registration

BIRMINGHAM, April 20—The sale of automobile licenses for the first six months of the fiscal year ending April 1, in Birmingham, has passed the total for the twelve months, ending Oct. 1, 1917, according to the figures made public this week by the Board of Tax Equalizers.

The tax report for the state shows automobile tags sold from Oct. 1, 1917 to April 1, 1918 reached a total of 30,394, private automobiles; 5909 commercial cars, and 858 motorcycles, for the state. Of this number Birmingham automobile owners bought 5982 private tags, 1550 commercial tags, and 417 motorcycle licenses.

During the twelve months ending Oct. 1, 1917 Birmingham bought 5540 private automobile licenses, 1697 commercial licenses, and 560 licenses for motorcycles. The total sales for the state during the same period was 26,952 licenses for private cars, 5921 commercial, and 1240 for motorcycles.

Another development which reflects the big growth in the automobile industry of recent months is a general demand coming from all sections of the state for better highways and the large amount of road improvement which is now going on despite the depression which might naturally be expected to follow war conditions.

Gas Advances in Chicago

CHICAGO, April 20—The price of gasoline in this territory was raised this week for the first time in six months. The Standard Oil Co. of Indiana announced an increase of 1½ cents a gallon, in the tank wagon price, making it now 22½ cents. The filling stations, both of the Standard and the Independent, have raised their prices from the previous figure of 21 cents to 24½ cents. The reason given by the Standard Oil Co. of Indiana is the heavy government demand, particularly for the high-grade fuel needed for aviation engines, which puts a greater strain on the refiner. It is impossible to get an expression as to whether they anticipate any raises in the near future.

Menominee in New Plant

MENOMINEE, MICH., April 22—The Menominee Motor Truck Co., Menominee, Mich., is now comfortably settled and operating at full capacity at its new factory, consisting of the former group of the Richardson Shoe Co., which has been entirely rebuilt and strengthened for motor truck manufacture. The output of Menominee trucks, which during 1917 numbered approximately 500 vehicles, will be more than doubled in the new plant.

Propose Same Law in All States on Theft

Secretaries of All States Draft Statute, and It Is Endorsed by National Dealer Body

ST. LOUIS, April 22—The attention of the local committee named by the Automobile Manufacturers' and Dealers' Association and other business organizations to work out a solution of the stolen car problem has been called to a proposed law drafted by J. T. Botkin, secretary of state for Kansas, who is acting as chairman of a committee of the Society of the American Secretaries of State.

The National Automobile Dealers' Association is backing the movement.

The proposed law is almost completed and will be submitted in proper form to the secretary of each state within the next few weeks, with a request that its passage be sought at the next state assembly. The idea is to have uniform state laws as to the registration and traffic in motor cars in all states, which Botkin and his associates think will be as effective as a federal law, and the enforcement of it will then be in the hands of the local authorities throughout the whole country.

The idea behind this act is that the transfer of title to a motor vehicle must be registered and accompanied by the official notation just as a deed to land now is. Any person pretending ownership to a motor car not so transferred will be subject to punishment without further evidence than his pretended ownership.

Registration of cars in various states would be uniform, each requiring engine numbers. If these have been removed, a secretary of state can assign a number for the first year, and this number must be cut into the engine. Then the owner will be given a certificate of registration. When he sells this car, he must formally transfer his certificate and the state department must be notified within 10 days. He will then issue a new certificate of registration at a nominal fee.

The bill provides that thefts shall be reported to the secretary of state, who shall at once notify all other secretaries of state. Also means is provided for notifying the police departments of the larger cities.

Catalogs Received

The Akron Rubber Mold & Machine Co. has published a booklet entitled "Tire Repairing—the Business of the Times." In it are cited reasons why the tire repair business contains innumerable opportunities for the business man and suggestions for conducting a tire repair business. Diagrams and descriptions of the company's Tip-Top Ti-Re-Pair outfit are also included.

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Chicago Trade Takes Over $500,000 Bonds

Dealer Association Steadily Pushing Hand of Giant Speedometer Around

CHICAGO, April 20—Up to date the Third Liberty Loan Speedometer Bulletin of the Chicago Automobile Trade Association shows that concerns in the trade have sold to their employees and others Third Liberty Loan bonds to an amount of more than $500,000.

The Liberty loan drive in the automobile trades is being handled through the Chicago Automobile Trade Association. Vigorous efforts are being put forth to insure that the automobile interests do their full share. Every second day during the drive the association issues a bulletin showing the results to date, not only that all in the trade may be kept advised of the progress of the drive, but also to spur on those who might otherwise be inclined to lag.

The official bulletin is in the form of a poster in patriotic colors, at the top of which appears a representation of a speedometer dial. The pointer is advanced on each successive bulletin to show the progress which has been made and to indicate the total of the bonds sold.

Immediately below appear the names of the concerns whose employees have bought Liberty bonds, with the percentage of purchasers relative to the whole number of employees. Where the number of persons to whom bonds have been sold exceeds the number of the employees of the firm, a plus percentage is credited.

Upon the lower portion of the bulletin it is proposed, beginning with the one which will be issued on Monday, April 22, to print the names of concerns in the Automobile Trades Division which have made no sales. It is fair to presume that not many concerns will be emulous of publicity in this space on the poster.

Delaware Tractor Demonstration Bringing Results

WILMINGTON, DEL., April 22—As a result of a tractor demonstration, which took place three days last week on Joshua R. Bishop's farm, near Dover, the capital of Delaware, farming by machinery has been stimulated. All sections of the state were represented at the demonstration, and the interest manifested ought to be productive of results. Seven tractors of as many different makes were in action at a time, plowing and doing such work as tractors are capable of doing on a farm. There were many inquiries, because the exhibition proved a revelation to many of the spectators.

The exhibition was conducted under the auspices of the Kent County Farm Bureau, a federal-state combination, and was open to all who cared to exhibit there.

As a result it is believed that a number of orders for machines will be booked. Farming by machinery looks like an early possibility in Delaware, and it seems quite likely that once installed it will automatically develop itself.

Western Electric Farm Outfit

NEW YORK, April 22—The Western Electric Co., with offices at 195 Broadway, is placing on the market a new farm lighting system, which, with a 90 amp.-hr. battery sells for $325; with 180 amp.-hr. battery the price is $385, both prices being without the gasoline engine. Both outfits have a 700-watt generator, storage battery and a switch panel, 5 x 10 in., incorporating an automatic regulating device. The switch panel is equipped with an ammeter and a single-pole double-throw switch for starting the engine and controlling the lights. All terminals are at the back of the panel, which is made of Munson slate and fully fused. The regulator governs the charging current, supplying a tapering charge. It is planned later to market a 500-watt and a 1050-watt outfit. Engines can also be supplied.

Detroit-Pontiac Road

PONTIAC, MICH., April 18—Petitions for a new concrete highway from Pontiac to Detroit have been filed with Oakland County and state officials. The route selected is out Auburn Avenue from Pontiac, entering Detroit on John R. Street, just east of the Ford factory. It is a direct line to Utica and Mt. Clemens, and a much traveled way to Rochester. It is expected that this route will divert traffic from the present congestion of summer seasons on Woodward Avenue concrete, which passes through Royal Oak and Birmingham. It is probable the work will not be started until next season. In conjunction with the roads to be built this year around Orchard Lake, and out Maple Avenue, from Birmingham toward Farmington, several of the larger villages of the county will thus be connected with Detroit and Pontiac by improved thoroughfares.

Reo Truck Output Increases

LANSING, April 20—Truck production of the Reo Motor Car Co. for the month of March was 735, compared with 325 in March, 1917. The present output of fifty per day will be increased. On April 15 the sales department was 1119 trucks behind its orders, of which 270 are heavy-duty trucks.

4901 Overland Men in Service

TOLEDO, April 18—The Willys-Overland Co. now has 4901 employees in the service of the United States Government, according to its service flag.

"Get the List Price!" Philadelphia Slogan

Automobile Accessories Business Association Nails This Motto to the Mast

PHILADELPHIA, April 20—Features of the meeting of the Automobile Accessories Business Association of Philadelphia last night, at the Hotel Adelphia, were epigrammatic propaganda for the National Association of Automobile Accessory Jobbers, prepared and presented by W. H. Metcalf, president of the Automobile Accessories Business Association; an address by Captain C. P. Ross, of the British army, on his two and a half years' experience on the western front and instructive remarks on the plans for the Return Loads Bureau that is being established in this city for the benefit of motor trucking concerns and shippers.

Absorbingly interesting to the members were the following points made by Mr. Metcalf on sticking to list prices in the trade and, which, it was suggested, should be printed for framing:

"Get the list price—always. There's a motto that should hang over the desk of every accessory dealer and it is, 'No one ever went broke by taking a profit.'"

"The garage owner who is successful has learned to estimate his costs and base reasonable charges upon them; but some accessory dealers still have rather hazy ideas about business. For this the selfish habits of some of their friends are to blame."

"The high cost of the early automobile produced a class of discount beggars. There are still plenty of men who think they shouldn't pay list prices for anything connected with motordom."

"Accessory dealers have more chances to give away their profits than nearly any other class of merchants."

"The property owner who regularly pushes up your rent thinks you should give him a family rate on spark plugs."

"The meat dealer who wants you to throw off profits for him, isn't shading the price of beefsteak this year."

"Your grocer isn't giving accessory dealers twenty and give when you make your monthly settlement."

"There's only one rule: Stick to list prices."

First American Tank a Steamer

BOSTON, April 19—Creeping along in the big military parade to-day on the anniversary of Paul Revere's ride was the tank America, the first one ever constructed in this country for our army. It was built over at M. I. T. field at Cambridge and has been under construction since last November, when Brig.-Gen. John A. Johnston, commanding the Northeastern Department, U. S. A., drove the first rivet. It weighs about 45 tons, and is 35 ft. long, 11½ ft. wide and about 10 ft. high. It has two steam engines using oil fuel, and working with the military engineers who designed it was a member of the Stanley family.

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Savings Recommended by War Service Body

Committee of National Automobile Dealers' Association Proposes Business Economies

ST. LOUIS, April 22—In order to guide dealers in war-time efficiency, the War Service Commission of the National Automobile Dealers' Association has worked out certain recommendations which President F. W. A. Vesper has made public.

These recommendations cover mostly the conservation of man power and the elimination of waste. They aim at the elimination of such service work as may be rendered unnecessary by proper education of car owners and provide for the training of men by dealer associations in the various cities, in order that skilled workers may be made available for government service. Many dealers have already been hard hit by the loss of mechanics.

The recommendations are not radical when considered in their entirety. While it is proposed to curtail free service, it is at the same time proposed to teach the car owner to take care of his car. The recommendations are largely those good business practices which the trade could well have adopted in normal times but which are made necessary by present conditions. The statement of President Vesper follows:

"The following report was made and submitted to Mr. A. W. Shaw, chairman of the Commercial Economies Board at Washington, with the assurances that the dealer industry stood ready to immediately develop these suggestions to the highest point of efficiency. The meeting of the committee indicated plainly that its function was largely in effecting economies of labor, rather than material, and that local association officials would be advised to immediately institute plans to bring about an early operation of the suggestions contained therein. The demand of the Government for skilled labor, both mechanical and drivers, will be met to its fullest possible degree by the automobile dealer industry throughout the United States, and the War Service Committee will lend its efforts in co-operating with the officials at Washington in this direction.

"**1—Unnecessary Service:** Careful investigation has disclosed the fact that unnecessary service, requiring the use of mechanics whose services might be dispensed with and released for the use of the Government or for work in other channels, due to the practice of issuing free service coupon books, service cards and other unnecessary work done because of custom—for a great majority of the work is of minor character, such as adjustments, etc., which the owner should make himself—can be eliminated and a very material saving of man power be made.

"**2—Sunday Work:** The large proportion of the mechanical work done on Sundays is occasioned by the use of cars almost entirely for pleasure purposes, and is usually emergency service on the road. It is suggested that a proper curtailment of this Sunday service will bring about a material saving of labor and release mechanics.

"**3—Night Service:** A substantial saving of mechanics' time can be made by the elimination of all-night service except where absolutely necessary for cars used in actual essential pursuits, including work on commercial vehicles in use for commercial purposes and on trucks which may require attention. It is suggested that it is entirely practicable that the work be handled at some one designated shop or in larger places divided up among a few, thus releasing a large amount of labor now necessary to keep open a number of establishments.

"**4—Education of Mechanics:** It is entirely practical for dealers' associations in larger cities to establish classes for the purpose of educating mechanics, drivers, etc., and for shops generally to encourage apprentices. In smaller cities, where no association exists, classes may be formed by the co-operation of dealers and could be held in garages in the evening and at odd times.

"**5—Establishing Cash Basis:** It has been demonstrated that the cash basis for labor, parts and supplies is of great economical value, as it eliminates a lot of unnecessary work, reduces clerical help and office maintenance and reduces losses. Also, much unnecessary work is saved when cash payment is required because it has been demonstrated, in towns working on cash basis, users do a large amount of the ordinary small adjustment work themselves and only call upon the mechanic when actual necessity requires it.

"**6—Education of Users:** It is clearly evident that users are not properly informed regarding the handling of the cars, thus making demands for service and unnecessary work extremely great. If a user is properly instructed in the handling of his car and urged to keep his car properly equipped, to see that his tools are in order and all there, that his jack is in working condition, that his extra inner tube and other extra equipment is in proper repair, a large amount of unnecessary mechanics' time will be saved, as it has been demonstrated by investigation that a large proportion of the emergency work is occasioned because the users' equipment is not in proper condition so that he can take care of his emergency or road repairs himself.

"**7—Elimination of Waste:** Inquiry develops the fact that a great deal of material, such as gasoline, oil, grease, etc., can be saved by proper shop methods, and immediate steps have been taken to canvass this important matter in a systematic manner.

"**8—Reduction in Demonstrating Expense:** While not a general practice, yet in some localities a large reduction in the number of demonstrating cars and cars used by salesmen will show a material saving in expense for the dealer as well as time required in keeping these demonstrating cars in order."

The meeting of the War Service Committee of the automobile dealers, called by President Vesper, was held in Chicago April 11 and 12, and was attended by a majority of the committee, who are as follows: Earl C. Anthony, Los Angeles; A. E. Maltby, Philadelphia; J. H. MacAllman, Boston; Geo. D. McCutcheon, Atlanta; F. E. Murphy, Minneapolis; Geo. W. Browne, Milwaukee; A. E. Mitzel, Canton, Ohio; Chas. Collier, Green Bay, Wis.; Finley L. MacFarland, Denver; Fred H. Caley, Cleveland; Dayton Keith, Chicago; O. P. Tyler, Worcester, Mass.; Charles M. Brown, New York, and F. W. A. Vesper, St. Louis.

Complete Program for National Roads

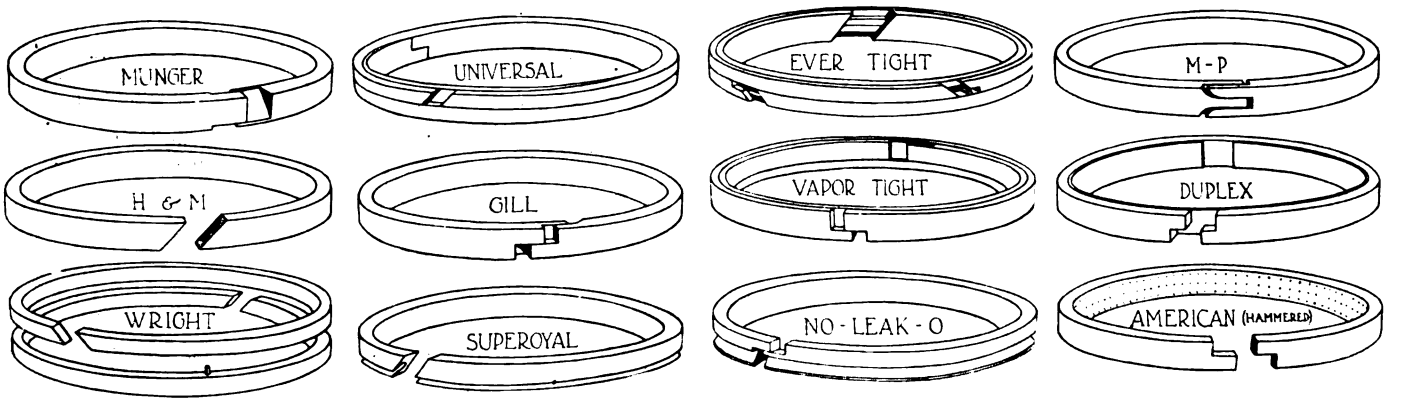
U. S. Good Roads Association Wants Federal Government to Link Up Truck Highways

LITTLE ROCK, ARK., April 18—Immediate need of the adoption and carrying forward of a definite and complete program for the construction of national highways by the national Government is the burden of the message which goes out to America to-day from the Sixth Annual Convention of the United States Good Roads Association which was in session here Monday, Tuesday and Wednesday of this week.

The kernel of the whole meeting is embodied in a resolution addressed to Congress and President Wilson calling for the creation of a federal highway commission which will look after the roads now under construction. It suggests that these roads should be designated as parts of a comprehensive federal highway system.

Particular pressure is laid upon the need of immediate action with reference to roads connecting military cantonments and other points with their bases of supplies and also special reference was made to such roads as give communication to military and naval points along our sea coast.

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ACCESSORIES

(*Continued from page* 84)

LEAK-PROOF PISTON RING

A two-piece concentric ring with sections of L-shape, each section sealing the opening in the opposing member. Tension is uniform. Made of special process gray iron, in over 2000 stock sizes, price varying according to size.—McQuay-Norris Mfg. Co., St. Louis.

McQUAY-NORRIS SUPEROYL RING

A concentric ring with oil reservoir to collect excess oil from cylinder walls on the down stroke of piston. A reservoir is cut in the bottom of the ring at an angle of 45 deg. from the inner section of the cylinder-wall bearing face of the ring. Intended to be installed in top groove of each piston with Leak-Proof rings in the other grooves. Made in all sizes.—McQuay-Norris Mfg. Co., St. Louis.

BURD PISTON RING

A one-piece concentric ring with the ends of the ring milled to tongues and a coupling or metallic guard surrounding the tongues. Made of fine gray cast iron, ground to size. Prices, 2½ in. and under, $1; up to 3½ in., $1.25; up to 4½ in., $1.50; up to 5½ in., $1.75; up to 6½ in., $2; up to 7½ in., $7.25. —Burd High Compression Ring Co., Rockford, Ill.

MUNGER

A one-piece concentric ring with a joint made by a double cut so that the contact surface of the ends are at an angle to the side of the ring. This allows the joint to remain tight after the ring has worn and the ends have separated a little. The inside of the ring is peened. Rings are made in standard sizes and oversizes for all engines and are packed in cartons, each containing a full set of Munger rings for the engine for which they are made, including oversize rings for the top grooves, a Munger Piston Re-grooving Tool, a Munger Ring Insertion Tool, and directions for operating and installing.—Splitdorf Electrical Co., Newark, N. J.

DUPLEX

A two-piece concentric ring with stepped piece, a conventional cast-iron snap ring with lap or step joint and the inner guard ring of clock spring steel. It is held in place to prevent slots in the bearing and guard rings from coming together by an arrangement of tongue and recess, and this closes the opening at the lap joint in the outer ring. Made only for Ford cars in regular 3¾ x ¼ in. standard and oversizes of diameter and width. Price 50 cents each.—The Piston Ring Co., Muskegon, Mich.

MICRO PISTON RING

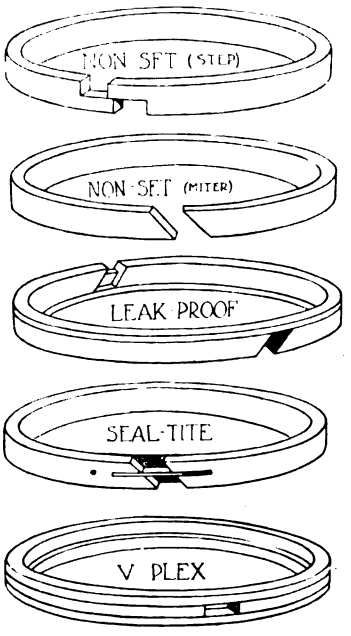
A two-piece concentric ring, the larger ring having a groove cut in its outer surface in which the smaller ring fits, the joints coming on opposite sides and sealed in each case by the solid metal of the other ring. Castings are fine gray iron, cast individually and ground to size.—Micro Piston Ring Co., 1960 Broadway, New York City.

NON-SET PISTON RING FOR FORDS

A one-piece piston ring for Fords with either step-cut or mitre joint, made from individual castings with inner surface retaining the hard skin. Made in standard size 3¾ by ¼ in. and over sizes of .0025, .005, .010, .015, .03125 and .0625 in. Put up twenty in a package.—Stevens & Co., 375 Broadway, New York City.

VAPOR TIGHT

A two-piece concentric ring with stepped slot in the outer ring and split on a radius on the inner ring, so that the two lips will meet each other regardless of where. The slots in the two pieces are diametrically opposite. Made in sizes from 2 7/16 to 18 in. diameter and standard widths at prices from $1 to $17.50 each.—Baker Valve Co., Minneapolis.



TENION PISTON RING

A gapless concentric ring. The upper section is an inverted L-shape and the lower section is rectangular and interlocks with the upper section. The joint of each section is sealed by the solid part of the other section and the circumferential joints are on the lower and outer surfaces, where they collect oil. Prices are $1.60 for 2¾ to 4½ in., $1.75 for 4⅝ to 4⅞ in. and $2 for 5 to 5½ in.—Edward A. Cassidy Co., Madison Avenue and Fortieth Street, New York City.

GILL PISTON RING

A one-piece concentric ring with a joint overlapping both horizontally and vertically and stepped on each joint. Made of individual castings of high grade, close grained iron. Price $1 up to 4 in., and $1.25 for 4 to 5 in.—Gill Mfg. Co., 351-359 West Fifty-ninth Street, Chicago.

INLAND PISTON RING

A one-piece concentric ring with long overlap spiral cut to allow for expansion, the ring uncoiling slightly in such case. Made in sizes from 2½ to 7½ in. at prices from $1 to $1.50 each.—Inland Machine Works, St. Louis.

HI-COMP PISTON RINGS

A two-piece concentric ring formed of two interlocking eccentric rings so placed and held that the joints come on opposite sides of the ring and are surrounded by solid sections of the other half. Exerts an equal pressure on all parts of the cylinder and has no extraneous parts. Made in all sizes at a uniform price of $1.50.—Continental Piston Ring Co., Memphis, Tenn.

M-P PISTON

A one-piece concentric ring with a joint which overlaps both horizontally and vertically. The inside of one of the ends is milled half way and a slot cut in the remaining tongue. The other end is cut just reverse to fit in. Rings 2⅝ to 3⅞ in. are $1 each, 4 to 4⅞ in. are $1.25 and 5 to 5½ in. are $1.50. Made in all widths from ⅛ to 5/16 in. at the above prices.—Metal Products Co., 3205 S. Broadway, St. Louis.

NO-LEAK-O

A one-piece concentric ring with step joint and oil-sealing groove machined around the circumference. The two lower rings should be set with the groove facing downward and the top one upward. Oil is held in the grooves and forms a seal or packing. Made in sizes from 2¼ to 6½ in. at from 50 cents to $1.10 each.—Automobile Accessories Co., 824 West North Ave., Baltimore.

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SEAL-TITE PISTON RING

A one-piece eccentric ring with patented lock joint, cast individually from refined gray iron, with scale left on the inside to give life and spring. Made in sizes from 2 to 8 in. in diameter. Prices under 4 in. 75 cents, up to 5 in. $1, up to 6 in. $1.25, up to 7 in. $1.50, up to 8 in. $1.75.—Seal-Tite Piston Ring Co., Inc., 1704 E. Lake St., Minneapolis.

V-PLEX PISTON RING

A three-piece concentric ring in which the center V-shaped piece makes the ring expand sideways as well as circumferencially. Price $1 to $2.25 according to size.—V-Plex Piston Ring Co., 2133 So. Michigan Avenue, Chicago.

AMERICAN

A one-piece concentric ring, hammered or peened on the inside and with a step joint. Sizes 2½ to 8 in. Prices $9 to $18 per set of 12 rings. Ford set, $7.50.—American Piston Ring Sales Co., Newark, N. J.

W'RIGHT

A two-piece eccentric ring with the pieces one over the other and so placed that the diagonal slots come at 90 deg. Made of close-grained gray cast iron, accurately sized and surfaced to a true fit. Made in stock sizes from 3 to 5 in. by eighths and in 3/16, ¼ and ⅜-in. widths at prices from 65 cents to $1 each.—V. A. Longaker Co., 448 North Capitol Ave., Indianapolis.

EVER TIGHT

A three-piece concentric ring designed to give equal pressure to all points. Has a right-angle interlock formed by the L-shaped ends of the outer rings, forming a tongue to fit in the groove in the inner ring. Joints are spaced equidistant. Stocked in all standard sizes.—Ever Tight Piston Ring Co., St. Louis.

H & M

A one-piece eccentric ring with 45 deg. split, cast of Virago metal by a special process. Finished to the closest limits practical and made in sizes from 3 to 6¾ in. Oversize rings made up to and including .025 in. oversize.—H & M Auto Parts Co., Cambridge City, Ind.

NEW UNIVERSAL

A two-piece eccentric ring composed of two eccentric duplicate rings fitted together sideways in concentric form by cutting each ring down to half its thickness, but leaving part of each ring full width, which is in the form of a crescent-shaped flange running nearly half way round and forming the inner surface on the thick side of each ring. Ford sizes, $1; up to 4 in., $1.25; 4 to 5 in., $1.50; 5 to 6 in., $1.75; 6 to 7 in., $2.—Albany Hardware Specialty Mfg. Co., Albany, Wis.

War Service Committee Appointed by M.A.M.A.

To Serve as Point of Contact Between Governmental Makers—Five New Members

NEW YORK, April 20—At the meeting of the Board of Directors of the Motor and Accessory Manufacturers' Assn. held yesterday, a War Service Committee was appointed to serve as an additional point of contact between the Government and members of the association. A. W. Copland, president of the Detroit Gear & Machine Co. will be general chairman.

Membership of the committee will be comprised of the chairman of each of the groups of the association as follows: B. F. Tobin, president of the Continental Motors Corp., chairman of the Motor and Motor Parts Group; A. R. Domery, vice-president of the Timken-Detroit Axle Co., chairman of the Drive Group; Christian Girl, chairman of the chassis group; J. M. Gunn, president of the United States Tire Co., chairman of the Tire and Tire Accessories Group, and H. J. Hayes of the Hayes Mfg. Co., chairman of the Body Group.

It was also decided at the meeting to send a delegation to the "Win the War for Permanent Peace" Convention, to be held by the League to Enforce Peace, at Philadelphia, May 16, 17 and 18. The delegates chosen to represent the M. & A. M. A. include C. W. Stiger, A. W. Copland, William M. Sweet, Atwater Kent, Henry P. Jones and J. A. Bower.

The question of sanctioning additional accessory shows was brought up at the meeting. The directors decided that this was no time for further expansion, due to the conditions created by the war, and that members of the association should conserve rather than expand. It is possible that a tractor show may be sanctioned later, but nothing definite was decided on.

The following new members were elected to the association: Whitman & Barnes Mfg. Co., Akron; National Tube & Mfg. Co., St. Louis; Walden-Worcester, Inc., Worcester, Mass.; J. & D. Tire Co. Charlotte, N. C.; Torbensen Axle Co., Cleveland.

How to Lay Out a Building

(*Continued from page* 91)

slightly so as to make it easier for cars to enter the garage.

The garage will hold about twelve cars including two on the washrack and if necessary additional machines may be parked in the aisle.

In order to prevent splattering adjacent cars, a thin hollow tile partition is advised, the width of the rack being 15 ft. and the length of the partition being about the same. The appearance of the washrack with a car being washed and also with two cars being stored is shown in Figs. 6 and 7.

There is room for five cars in the shop, entrance to which is through a series of sliding doors which enable a car to be run in exactly where it is wanted.

A work bench runs all along the rear wall. There is a lavatory and locker room, a tool room and space for drill press, arbor press and emery wheel.

The dimensions of this building was stated at the outset to be 50 x 100 but obviously the plan will do for plots near these figures. It should be clear that the building may be any length from about 50 ft. up. In the former case there would be no garage space.

The width may vary from a minimum of about 40 ft. up to 50 or possibly 55 without any change in arrangement. Above 55 ft. and up to about 70 ft. three rows of cars should be used as shown in Fig. 8, wider layouts will be taken up later. This design is not advised for plots wider than 45 or 50 ft. because with wider ones there is space enough to afford a more pretentious arrangement of showroom and shop unit.

For plots not less than 100 ft. deep and of any width the cross arrangement of cars, Fig. 9, is good. In fact for a plot less than 50 ft. wide it will be found more convenient than the other way.

Fig. 10 shows the same plan (50 x 100 ft.) slightly modified for a corner location. The showroom unit is more roomy since the driveway has been eliminated, the cars are arranged cross-wise in the garage and the shop is identical. The extra room in the showroom unit has made it possible to add a stockroom downstairs.

Such a plan may be made in any width without affecting the layout but the length cannot be much less than 100 ft. without rendering the garage too small for two rows of cars. There is no advantage in making the building more than 100 ft. long unless it is desired to increase the depth of the showroom unit or unless the depth of the garage is made 55 or 60 ft. so that two rows of cars may be placed on one side of the aisle.

Selling the Cheaper Car

Sometimes a prospect thinks that by paying a couple of hundred dollars more, he'll get a better car. Then I show him that mechanically our car is as good as the other and what $200 will do for him in buying tires, etc., or suggest that he can have a special top put on, seat covers, wire wheels or some other extra that will tailor the car exactly to his tastes and really get more than he would if he bought the other car.—F. I. Willey, H. C. McVey Co., Los Angeles.

Detroit Subscribes $23,000,000

DETROIT, April 12—At noon Tuesday, the second day of the third Liberty loan drive, Detroit had reached a total of $23,000,000 of its $36,000,000 quota. The automobile and parts manufacturers in this territory have distinguished themselves by their prompt and patriotic response to the loan, and before the drive is over it is expected that a record will be set by the industrial concerns in this vicinity which will place the city and the surrounding territory among the leaders of the country in percentage ahead of

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume LV
No. 5

New York, May 1, 1918

Ten cents a copy
Two dollars a year

A Book of Startling Inside Facts—Free

An Impartial Investigation of Tire Conditions by Experts

Miller publishes this book and sends it free to any dealer interested. But the investigation that it covers was not made alone among Miller Dealers. Instead, questionnaires were mailed to practically every tire dealer in the United States. This brought over 25,000 answers from nearly every state in the Union.

The questions asked were not phrased to obtain answers favorable to Miller. The whole survey was conducted on a strictly impartial basis. And the startling facts that it brought to light have been charted and given in a nutshell in this book, originally intended for Miller Dealers only. We have decided to distribute a limited supply among good dealers—dealers who want facts about their own business, which they can obtain in no other way.



Miller UNIFORM MILEAGE Tires
GEARED-TO-THE-ROAD

Besides revealing amazing conditions, this book tells you of an idea in tire selling and in tire buying that until now has not been made a reality. It tells you how Miller Tires are built by picked squads 96 per cent efficient—master builders, less than 1 per cent of whose tires ever calls for adjustment.

No matter what tires you are selling now, this is a book that vitally interests you. You may send for it without obligation and confident it will be worth your while, no matter how you feel about tires that you are handling now.



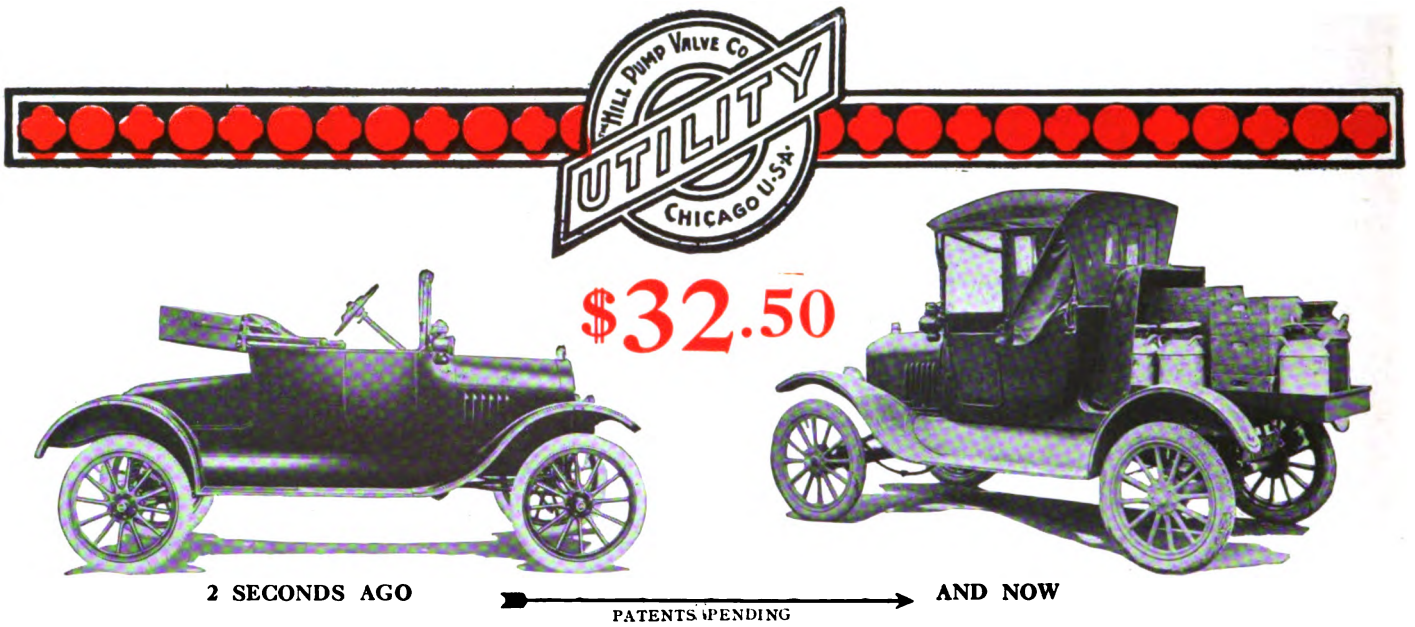
The Miller Rubber Company
DEPT. A-23, AKRON, OHIO

The Ground Work on Which to Build a Bigger Tire Business in 1918

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Advertisers' Index—Next to Last Page

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HERE IS THE NEW

UTILITY DISAPPEARING TRUCK

FOR FORDS—INSTALLED BY ANYONE WITH A HAMMER AND WRENCH

In two seconds a Ford roadster is converted into a half ton truck and back again. The truck is completely out of sight under the ORIGINAL turtle back of the Ford. When not in use the UTILITY DISAPPEARING TRUCK cannot be seen by the most careful examination.

Can be completely installed by ANYONE with a hammer and wrench in ONE HOUR. Only four bolts used in attaching it. No rattle, no vibration—a firm, secure truck body made of heavy gauge steel.

The turtle back cannot be injured or marred when Ford is being used as a truck. It lifts up automatically and protects back of seat from scratches. Even when the UTILITY DISAPPEARING TRUCK is in use the Ford does not lose any of its original appearance. It is still a trim, neat little runabout. In TWO SECONDS the car is made into an exclusive passenger car with no hint of the UTILITY DISAPPEARING TRUCK telescoped under the turtle back. Makes a Ford car undoubtedly the most useful car on the market.

CARRIES ANY HALF TON LOAD YOU HAVE TO CARRY

No matter what the nature of the load to be carried, if it does not exceed a half ton it can be carried quicker and cheaper with the UTILITY DISAPPEARING TRUCK. No extra attachments or parts—just lift the turtle back, slide out the UTILITY DISAPPEARING TRUCK and have a half ton truck in TWO SECONDS.

Made of heavy gauge steel, beautifully finished in black baked enamel, and can be pulled out to the desired length. Practically indestructible because no bolts or rivets are used in the acetylene welded body. Like all other UTILITY products manufactured by this company, the UTILITY DISAPPEARING TRUCK carries an unqualified guarantee of satisfaction.

DEALERS—*Order your sample now and write for complete details and the agency for your community.*

THE HILL PUMP VALVE COMPANY

Archer Ave. and Canal Street, Chicago

DISTRICT OFFICES:

NEW YORK.....149 Church Street
SAN FRANCISCO...149 New Montgomery St.
SEATTLE.....L. C. Smith Bldg.
KANSAS CITY.....Rialto Bldg.



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MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

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A Reliable Speedometer For Your Ford

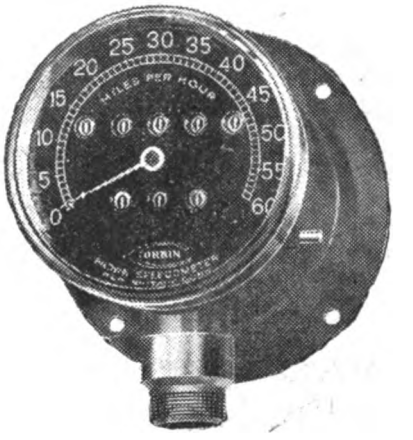
THE Ford Owner, lacking an oil gauge, must keep his mileage record accurately in order to renew the lubricant at proper intervals.

Neglect of this safeguard may leave him with an oil-less motor some time far from a garage.

Many Ford owners never bother opening the petcock in the motorbase to learn the oil level. They simply supply a quart of lubricant for about every fifty miles of travel, as indicated by the

CORBIN-BROWN SPEEDOMETER

That saves them a lot of trouble and insures proper oiling. Experience has shown them that the Corbin-Brown remains perfectly reliable after seasons of hard usage.



The accompanying illustration shows Special Ford Bracket No. S-250. This bracket, though firm and rigid, can be adjusted to four positions by merely removing four screws. The driver can place it at the angle most convenient to his range of vision.

The Corbin-Brown for Fords is also furnished with complete, handsomely finished cowl board if desired.

Write for Catalog

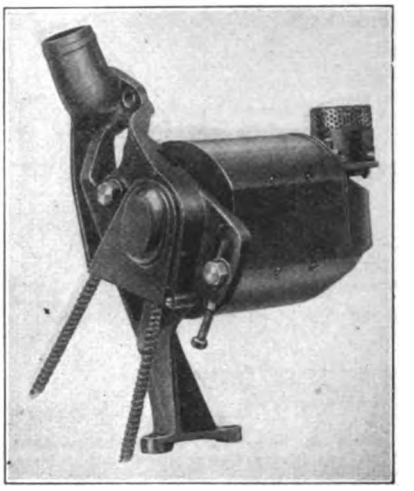
The Corbin Screw Corporation
The American Hardware Corporation, Successor
NEW BRITAIN, CONN.
BRANCHES: New York Chicago Philadelphia
Makers of Corbin Duplex Coaster Brakes for Bicycles

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Starts Your Ford—Lights it, too

A touch of the pedal and Genemotor starts your Ford engine. Pull a button and you obtain powerful, sure, safe lights.

Genemotor is installed in a couple of hours, after that it requires no attention except the adding of distilled water to the battery every two weeks.



Genemotor
Trade Mark

"It starts your Ford and Lights it, too"

Genemotor is designed to be a part of the Ford Car. It is light and powerful. It charges the battery at slowest speeds. It is the popular electrical equipment for Fords. May we tell you about our agency plan?

Built by the General Electric Co.

Price $90 F. O. B. Lynn, Mass. Sold Everywhere

Prest-O-Lite Battery Standard Equipment

Send for 1918 Genemotor Catalogue

A. J. PICARD & COMPANY, Inc.

General Distributor

Sixty-first Street, at Broadway New York City

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MOTOR WORLD for DEALERS, JOBBERS AND GARAGEMEN

Vol. LV New York, U. S. A., Wednesday, May 1, 1918 No. 5

"Keep the Sales Fires Burning"

World's Salesmanship Congress Declares for Business Activity and Greater Expansion in America's War Program — Curtailment Propaganda Deprecated

By Ray W. Sherman

DETROIT, April 27—Greater activity in business is essential if America is to prosecute the war successfully, according to the sentiment expressed at the World's Salesmanship Congress here Wednesday, Thursday and Friday.

Out of nearly fifty speakers, drawn from all lines of trade, practically every one spoke upon the relationship between the war and American business. It is stated that war topics were chosen at the suggestion of President Wilson, who opened the Congress in 1916.

War Alone Can't Win

E. LeRoy Pelletier, well known as an advertising man in the automobile trade, summed up much of the sentiment when he said: "You cannot finance a war out of a war."

W. F. Steedman, an insurance man from Montreal, summed up the Canadian situation by saying: "By keeping the home fires burning over here we have kept the hell fires burning over there."

A telegram of confidence and support was sent to President Wilson, who replied by wire while the Congress was still in session. Telegrams were also sent to Edward N. Hurley and Charles M. Schwab of the Shipping Board.

The subjects of a few of the speakers referred to after-the-war business, and the principal thought of each was that we should at this time begin a study of those conditions which are likely to obtain in order that all business may see its way more clearly through the future.

One session devoted to advertising passed a resolution urging the repeal of that part of the War Revenue Bill which would require all national publications, such as Motor World, to pay postage on a parcel post zone basis, thereby doubling the price, and more, to readers in the West and Far West. The Congress also passed a resolution urging a change in the Sherman anti-trust law, which, the resolution stated, is out of date, has never been used for the purpose for which it was intended, and serves to demoralize rather than benefit business.

Hawkins Analyzes Finances

Norval A. Hawkins, sales manager of the Ford Motor Co., and one of the founders of the Congress, proved to be the star speaker of the session, with a cost accountant's viewpoint of the world war situation. His analysis, which is presented on pages that follow, shows the assets of the warring powers, together with the national debts. His summary was to the effect that we must continue business at top speed in order that we may finance the war without using our capital. He urged more business in politics and pleaded for a higher degree of national and business efficiency.

Automobile Men Participate

Speakers from the automobile trade included Norval A. Hawkins, sales manager of the Ford Motor Co.; Commissioner William M. Webster of the National Association of Automobile Accessory Jobbers; E. LeRoy Pelletier, advertising counsel; W. K. Rutherford, sales manager, B. F. Goodrich Co.; F. B. Caswell, sales manager, Champion Spark Plug Co., and L. C. Rockhill, sales director, Goodyear Tire & Rubber Co.

The handling of the nation's business by the government was mentioned by several speakers and the Congress applauded vigorously the assertion that we must, during the remainder of the war and the peace period that follows, have more business men in politics and fewer lawyers, politicians and bureaucrats. Mention of the activities of such men as Hurley and Schwab brought cheers on every occasion.

Salesmanship as a subject was given a minor position in the program, although parts of several sessions were devoted to this science. It was recognized that

(*Continued on page* 12)

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Balancing the Books of
The Huns and Humanity

By Norval A. Hawkins

THE article that follows is an address on "The Citadels of Cash, Credit and Commerce" before the third annual World's Salesmanship Congress in Detroit last Wednesday, Thursday and Friday, by Norval A. Hawkins, sales manager of the Ford Motor Co. and one of the founders of the Congress. The address compares the resources of the Allies and the Central Powers from the standpoint of an accountant, which profession Hawkins used to follow. This is a most original and interesting war treatise, and each reader should study it from beginning to end. The article makes plain that WE can win the war IF we try, but that we must not become cocksure. Hawkins asserts that BUSINESS MUST CONTINUE and business men must study and plan for the days now and to come. Success is ours, IF—

A CITADEL is defined by Webster's dictionary as "A final point of defense." It is a sort of "last ditch" which a fighter prepares in anticipation of the possibility of getting so badly licked outside the citadel that he will have to run to cover and fight from there. I am not going to talk to you about our citadels of cash, credit and commerce as "final points of defense," however; because as Americans we are not making any plans to get licked. We are not going to fight this war against the Huns on the safety first policy for ourselves, but on the basis of danger first, last and all the time to the boche beasts—whether they are in Europe or here among us in America.

Our American citadels are not fortifications of resources behind which we mean to hide on the defensive. They are rather bases of offense, in which our active fighting units can be organized and equipped for aggressive warfare in the open. I cannot conceive of such a thing as a citadel of commerce on the defensive. Initiative and free activity are essential to the very idea of trade.

World's Strongest Nation

A weak nation might properly regard its citadels as final points of self-defense. So Switzerland considers her mountain fastnesses. And so Holland thinks of her territory with the sea let through the dikes to isolate her last fighting ground should she be attacked. If America were weak, we might regard the Western Hemisphere as our citadel and find comfort in the ocean as a moat 3000 miles wide. But we are not weak. *We are the strongest of all the nations on earth.* We do not look upon the ocean as a protection from our enemies but as a bridge across which we must take our aggressive might into the battle on the other side. We have picked the place where we mean to fight. It is "over there," not over here.

We have read in the daily papers lately about the titanic struggle of fighting men on the Western front. It has been estimated that over four million soldiers have been engaged in battle since the opening of the German offensive last month. The dispatches refer to the "hordes" of fighters. The two million Huns of Hindenburg's battering ram have seemed to be a well-nigh irresistible force. The civilized world has feared that the fierce assaults of the barbarians would break through the Allies' best efforts of defense by sheer weight and momentum.

Must Be More Than Men

Yet how comparatively insignificant would be two million mere men not backed up by any strength outside themselves! Only when we comprehend the immense powers behind the opposing actual fighters does the struggle appear really tremendous. For every soldier on the battle lines there are seven people in the working citadels at the rear making the war he is distributing in the immense business of conflict. In the citadels the production is done; the soldiers are but the salesmen of war, and the enemy is the consumer.

There would have been no Hun offensive this spring, with the risks the great drive has involved, if Germany had to fight only our present army in France. But the beast sees across the Atlantic all the might of America behind Pershing and knows "it's coming over." Germany has tried our samples and is afraid of our delivering the goods in larger quantities. The Huns don't relish the prospect of being tackled by five million American fighters fully equipped in our citadels of power resources, and just itching to show Germany the latest samples of war, "Made in U. S. A."

Europe Getting Weak

Behind the Huns are no strong citadels of man power, or of cash, or of credit, or of commerce. At their back are the crumbling ruins of erstwhile financial and industrial strength. If Germany faced only her European enemies, she might hope for a stalemate that would mean victory for her because of her conquests already made. For behind the lines of the Allies are weakened citadels also.

But America is just beginning to pour out of her treasure chest wealth in money that is greater than is possessed by all the old world fighting nations combined. She has barely begun to draw from her reservoir of men the fresh fighting power that equals the sum total of the Hun armies. Germany knew that unless she could beat France and England first, she soon would be behind the Rhine as her last ditch. *She is fighting the final battle of desperation to save herself from the just vengeance of America, the irresistible champion of Democracy for the world.*

War Only a Business

Modern warfare is less actual fighting than it is business. War, in fact, has been called "business carried to the *n*th power." All the meanings of life have been changed by this war. The president of the first bank ever chartered under the National Bank Act of the United States recently declared, "The business of this country now is war, and must be war until Germany acknowledges the futility of sword worship." War, then, must be considered as a business; and our principal business must be understood to be war, when we refer to our citadels of cash, credit and commerce.

So considering war as our great national business at present and thinking of America as a national organization engaged primarily in the business of making war, it is vitally important that we know the balance sheet summaries of our assets and liabilities. We need to be familiar, too, with similar balance sheets of our Allies and of our enemies. The fighting nations have all made war their business. By studying their balance sheets as they were before the beginning of the business of war, and also as the figures are at present, we shall be able to learn the condition of their businesses and to judge the strength and weakness of their citadels, or "final points of defense" behind their cash, credit and commerce.

The balance sheet of any business, or of any nation, shows what its condition

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Balance Sheet of the World War

Nations	Estimated Wealth	Debt Aug. 1, 1914	Per Cent	Debt Jan. 1,1917	Per Cent	Debt April 1, 1918	Per Cent
Great Britain and Ireland	$90,000,000,000	$3,500,000,000	3.9	$18,000,000,000	20.0	$29,000,000,000	32.2
France	65,000,000,000	6,600,000,000	10.1	16,000,000,000	24.6	24,000,000,000	37.0
Italy	25,000,000,000	2,800,000,000	11.2	4,800,000,000	19.2	8,000,000,000	32.0
Total Allies	$180,000,000,000	$12,900,000,000	7.1	$38,800,000,000	21.5	$61,000,000,000	33.9
United States	260,000,000,000	.....	...	1,200,000,000	0.46	11,000,000,000	4.2
Total Allies to-day	$440,000,000,000	.....	...	.....	...	$72,000,000,000	16.3
Germany	$84,000,000,000	$1,200,000,000	1.4	$15,500,000,000	18.4	$27,000,000,000	32.1
Austria-Hungary	35,000,000,000	4,000,000,000	11.4	8,500,000,000	24.2	20,500,000,000	58 5
Total Huns	$119,000,000,000	$5,200,000,000	4.3	$24,000,000,000	20.1	$47,500,000,000	40.0
Balance in favor of (H) Huns or (A) Allies			(H) 2.8	.....	(H) 1.4	.....	(A) 23.7
At end of Napoleonic war, 1805-1814:							
Great Britain	$11,500,000,000	$4,300,000,000	37.5				

was when it started in business. Its capacity to carry out its purpose and successfully conduct its business may thus be judged accurately from the beginning. Another statement taken when the business is under way and has been operated for several years shows the tendency of the business up or down. A comparison indicates what the balance sheet of the business is likely to be in the future if the same tendency is maintained. Checked up against the balance sheet of another business, their respective net values become evident. If the two businesses are competitive, and are fighting each other mercilessly, their balance sheets will show which is likely to be driven to the wall first and which will probably continue as a going concern and heal the wounds of past competition with the profits of future trade.

From the balance sheets of the European fighting nations I shall take only the totals in round figures of their national wealth and public indebtedness a year ago when America entered the conflict, to determine approximately their net worth then. In another summary later we shall see the present balance sheets of these nations according to the latest figures available. And, finally, we shall note in comparison the net worth of America after a year of war expenditures.

Assets of the Powers

At the beginning of 1917 the figures in round numbers for the principal combatants were as follows, the estimated wealth of each being the total as it was before the European war began. It is impossible to approximate at this time the effect of the war on the wealth of the respective nations. Probably there have not been sufficient increases or decreases to change the figures substantially. Increased production of wealth has been offset by war destruction. (See table on this page.)

These were the totals, remember, for the beginning of 1917. Now, one year and three months later, the figures are as follows, assuming that the grand totals of national wealth are not substantially changed. (See table on this page.)

It will be informative, also, to have the figures of the balance sheets before the war started. (See table on this page.)

Note that in these figures neither the wealth of the British Empire outside the United Kingdom, nor the debts of the British Possessions are included.

Now let us think of these grand totals in terms of percentages in order to appreciate their trend vividly.



NORVAL A. HAWKINS
Sales Manager of the Ford Motor Co., Detroit

At the beginning of the European war the public debts of Britain, France and Italy combined amounted to approximately 7 per cent of the total national wealth of those nations.

Three years and a half later, just before America entered the conflict, the debts of our three great Allies had climbed to 21 per cent of their total wealth.

This spring, right now, Great Britain, France and Italy combined owe approximately 34 per cent of all their worth.

Worse in Napoleon's Time

Just here, for the purpose of comparison, let us recall that at the end of the Napoleonic Wars the public debt of Great Britain, which then had a total wealth of $11,500,000,000, was $4,300,000,000—practically 37½ per cent.

Now look at the percentage figures for the Huns.

When Germany and Austria-Hungary started on the business of war in the fall of 1914, their aggregate debts amounted to but a little over 4 per cent of their combined wealth.

At the time we declared war on Germany, the Hun percentage of debts had risen to 20, which was 1 per cent less than the debt percentage of Great Britain, France and Italy combined at that time.

Now the Huns owe 40 per cent of all they are worth, or 6 per cent more than the three Allies. And of this amount so large a proportion is the debt of Austria-Hungary that *the mongrel monarchy owes approximately 60 per cent of all its wealth at the present moment. No wonder Austria-Hungary is losing interest in Germany's war. She has lost not only interest but most of her principal!*

Those figures and percentages are terrific to contemplate. They certainly spell complete ruin if they are continued in the same ratio much longer.

Our Own Standing

Now let us see how Uncle Sam stood on his balance sheets when we went into the business of war, and how the United States stands to-day after a year of war expenditures.

The last of April, 1917, the total public debt of America was $1,200,000,000. Now it is approximately $11,000,000,000. (Incidentally I would say that we are spending $30,000 a minute on the business of war at the present time, of which about two-thirds is money we are borrowing from ourselves.)

The total wealth of the United States is so vast that it cannot be estimated accurately. The most reliable statisticians conclude that we are worth in round figures over $260,000,000,000. Our public debt, at the beginning of the war last April, was therefore less than one-half of one per cent of our total wealth. And now, after we have been in the war a year, despite our enormous expenditures, our debt amounts to but about 4 per cent of what our wealth was when we began the war business. At the end of the present fiscal year of 1918 (the government estimates of expenditures for the year are about $12,000,000,000), we shall have accumulated a debt that will be a total of but 7 or 8

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More than 300 executives from many professions made up the third annual World's Salesmanship Congress nearly 50 addresses that were delivered the one big thought was that business

per cent of what our wealth was a year ago.

Not Wasting Any Capital

But there is one factor about our situation which is very different from the status of the European countries at war —that while they are *using up their capital wealth we are just applying our national earnings to war. After spending* $10,000,000,000 *on war, we are as rich as we were before we started; though perhaps intrinsically no richer.*

Our Allies and our enemies have been getting poorer because of consuming both capital and earnings; whereas the worst that can happen to us is that we shall stay right where we are, in net wealth; provided we are not prevented by our own laws and regulations from doing business and making money, without interfering in any way with the public business of war.

Now let us return to the balance sheets of the European nations and compare their figures with ours, to determine our respective standings in the business of war.

Our Allies have left a net worth, over and above their debts, of approximately $119,000,000,000. Our enemies could scrape together, after paying what they owe, $71,500,000,000—or about 60 per cent as much as our Allies. Both our enemies and our Allies possess now an aggregate net wealth of $190,500,000,000, or but little more than our Allies alone owned when the war started.

The Cost Enormous

The war therefore has cost Europe already almost the total wealth of the Hun Empires. So if the war business were to be ended to-day by victory for the Allies, they hardly could collect from the Kaiser and his jackal Charles of Austria all that pair of deadbeats owe the civilized world, even if they sold them out for all their net worth.

When the European War started the whole of the net wealth of the principal nations engaged on both sides was just about equal to what America is worth to-day in cash. *At the present moment Uncle Sam is worth nearly one and one-half times as much as all the rest of the belligerents combined, and four times as much as both the Hun nations.*

It is perfectly evident from a contemplation of these figures how tremendously strong are our citadels of resources. We have more than a quarter of a trillion dollars with which to put the Huns' seventy billion dollars net out of the war business. *Who can doubt that economically we will win in spite of the brute strength of the Huns at this time?*

Billions and Billions

I have quoted these stupendous figures from America's balance sheet, not vainglorously, but in absolute confidence of the strength of our citadels of resources for carrying on the business of war. I am not inclined to boast of our inexhaustible wealth. I am conscious of the sober meaning of such enormous sums as I have mentioned.

Nowadays we all talk too glibly of billions. We have not individually comprehended that *each one of a billion dollars is made up of one hundred pennies, each just like the cents we have in our pockets.* So right here I want to pause long enough to say that while I have spoken of billions casually because war figures run into such totals, and while I cannot comprehend a billion dollars any better than can anybody else, I can and do know the worth of a single dollar, and I know the dollars I am talking about are exactly the same kind of dollars as those you and I work to earn that we value at their purchasing worth to us.

There are two reasons why I have given all the big figures. First, the national balance sheets prove the incomparable strength of our citadels of wealth. SECOND, THEY SHOW CLEARLY TO THE EYES OF GOOD BUSINESS SENSE THE COURSE WE SHOULD PURSUE IN ORDER TO MAINTAIN THE STRENGTH OF OUR CITADELS.

It is sheer idiocy for America to pay the cost of this war out of our capital resources. We should carry on war by carrying on business from day to day, year in and year out, and defray all the expenses possible from our national earnings. No other nation on earth can do this. The other nations, enemies and allies alike, are bankrupting themselves in their business of war. In their cases such a disaster is inevitable if the war lasts. We even could figure out the approximate dates when all their wealth will be exhausted. *But the stream of our wealth will continue to flow in sufficient volume to defray the greater part of our war expenses unless we ourselves dry it up.*

It is proper that we should regard the war as our principal business. And one of the elements of that attitude should be our recognition that our principal business must be sustained without impairment of our total business strength. One of the principal things we should have in mind always is the prime necessity of having big business profits with which to pay the total expenses of a big war; so that we shall not be going toward economic ruin every step we take in war, as all Europe is going. Our citadels are strong.

If we have business sense we shall not weaken them by pulling down the walls to hurl the bricks at the Huns. Instead we shall make bricks behind the walls and throw what we produce, leaving our citadels intact and building them stronger and stronger.

Must Not Kill Business

While we are destroying the power of the Hun outside our citadels, we must not destroy our own internal power by killing off business in America. We people of the United States are willing and able to pay from our earnings the special assessments of war. We have a right to demand, however, since we are willing to pay and able to pay for the war out of our business earnings, that our right to earn money shall not be denied to us. It is not necessary to stop doing peace business in America in order to do our war business in Europe. It is not necessary to tie up hit and miss

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which met in Detroit April 24, 25 and 26 for the consideration of the relation of war to business and the effects. In the must continue with great activity if the world war is to be won for humanity.

our national productive capacity in order to get out the required war materials. If it were necessary to stop peace business entirely in order to make war, we should all be willing to do it.

The total number of men now in our army and navy, including all those in the training camps, amounts to but one million eight hundred thousand. In peace times we always had from two to four times that many idlers in this country. We have only begun to take up the slack in our man power, and we have the tremendous reserve of woman power that can be used effectively besides.

Three Kinds of People

People classify in this world under three headings: First, the people who are willing to work, and do work; second, those who don't want to work, and won't work; and third, the diplomats. We have only just begun to absorb some of the don't-want-to-works and a few of the diplomats in America. And I believe when both of the above classes are put to work here and in Europe, there won't be any more wars for lack of the idle hands that Satan proverbially employs for his purposes of deviltry.

Now how about our business capacity to make war and to make the products of peace, too? There are a lot of people in this country who say we cannot do both; though a good many of them have never been in business and don't show any remarkable ability to make war. The question we'd like those fellows to answer is, *"How do you know we can't do business and support the war fully at the same time?"*

What High Efficiency Can Do

In order to produce all the war materials needed for America, our total national wealth employed actively would need to yield a return of only 5 per cent on our national principal. We business men know that with high efficiency in our operations we can add ten or twelve billion dollars' worth of products to our normal output of manufacturing, to say nothing of agriculture, without doing more than getting up a good sweat at the job.

Every true American is eager to serve his country whether in uniform or in overalls. We all want to do war work if we can, and to do that first. But the government seemingly does not appreciate that there is not enough war work to go around. We refuse to believe it is patriotic to stand idle. *We insist on our right to work at our usual businesses and to create national wealth, to the extent that we are not employed in making war directly.*

For this right it should not be necessary that we plead. American business and American labor must earn the money to pay for this war with taxes and by purchasing Liberty Bonds. We cannot make that much money from war profits, manifestly. *It must come from profits on peace business as well. Yet if we were to accept the ideas of penurious thrift proposed to us, if we were to quit doing business in the production and distribution of any so-called non-essentials, there wouldn't be enough peace business alive to attend the funeral of American prosperity.*

Business in Politics

More practical men of business efficiency installed in the jobs at Washington, and the removal of the impracticable, unbusinesslike theorists, will help greatly to cure what ails American industry. Every business man in the United States should be willing to work just as large a per cent of his capacity on war orders as the government can use to advantage. But that is doing his full duty as a patriotic business man so far as running his plant is concerned. *In order to do the rest of his duty, buying Liberty Bonds and paying taxes, he must have the right to make and sell his regular line if he can, without interfering with the main business of war.*

Conservation of our resources is sound policy. But don't forget that our biggest resources are our manufacturing and distributing organizations which increase enormously the value of the wealth produced from the ground.

If the business of war is efficiently managed, the business of peace won't interfere with it. And it is being managed more efficiently now; so that the snarls of red tape soon will be untangled and we in business shall have *business men instead of bureaucrats to deal with in working out our problems of co-operation with the government.*

Get Everybody Busy

England is not tackling the similar problems there "hind side foremost," as we have been doing. Her policy is to get everybody busy at something productive, either of war materials or of wealth in general. Of course, she does not permit private business to hinder the business of war. But on the other hand she does not interfere with private business that doesn't hinder her war activities. Rather, she is stimulating her industries in order to secure the largest production possible, and consequent large war profits. Then she taxes these extraordinary profits heavily, once they are made, in order to secure as much revenue as possible for war expenses. England is paying a quarter of her war bill as she goes. *She does not label as unpatriotic the business men who furnish her the money in taxes.*

There is no good reason why general business should not be good everywhere in America. Modern business knows what it is capable of doing when under the stress of necessity. But it cannot do its best when hampered. I repeat that adding our complete war materials output to our undiminished peace time industrial production is just a matter of good business management of our enlarged national business. Or, to put the situation in another way, an efficient business management would so organize American activities that we could do both war business and peace business in our same industrial plant, giving war business the preference every time, the same as business sidetracks other work temporarily in certain departments of a factory in order to get out rush orders. The complications in the situation are

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unbusiness-like complications. What we need is not to do less business, but to get down to business and do the war business in a business-like way.

Twice the Gold of the World

While we are considering our workshop citadels of wealth, let us refer for a moment to the subject of cash itself, since I am supposed to speak on the Citadel of Cash specifically. Cash itself is practically worthless, of course. Money is but a medium of exchange designed for the convenient distribution of tokens of value. But let us think of our stock of gold and silver as if they had intrinsic instead of representative values. How much in gold and silver coin and precious bullion have we working in our citadels to stabilize our business? Approximately $3,800,000,000, the greatest stock of gold and silver ever held by any nation in the history of the world. America owns over $3,000,000,000 in gold and nearly $800,000,000 in silver, which is now worth as metal practically its coin value in gold. *We have nearly twice as much gold as all our allies and our enemies combined.* March 29 of the present year the Federal Reserve system alone held $1,815,704,000 in gold. The first of this year the Huns had only a little over one-third as much, $680,586,000.

Our present banking system is a guarantee that there never is likely to be a shortage of money with which to do business. Besides the tokens of value backed up by gold and silver coin and bullion in our citadel of cash, we now have other tokens of value in bank notes and government bonds that pass currently as cash. You and I would as soon have the bills in our pockets as the coins we carry. They are on an exact parity of value in our eyes, because of our known financial strength of resources. The total stock of money in America, March 1, 1918, was over $6,300,000,000. *There surely then is no money reason why we cannot do both war business and ordinary peace business in America.*

Credit Is Strong

Our citadel of credit is an even stronger resource than is our citadel of cash. Our credit is based, not upon our wealth tokens in precious coin and bullion, but upon our real wealth from manufacturing, agriculture and trade. Our immense gold reserve is a great economic asset on our balance sheet merely because the standardized value of gold as a measure of worth affords a generally recognized basis for sound credit financing of a nation.

Secure in the strength of our citadel of credit, behind the bulwarks of our cash holdings, the government is organizing to the utmost our credit strength as a fighting instrument in our principal business of war-making. For the express purpose of strengthening our citadel of credit still more, the War Finance Corporation, the most gigantic source of credit in the history of nations, has been constituted. It will supply additional billions for the needs of war industry, and may increase our stock of sound money by one-half if that much should become necessary for business expansion. It is too soon yet to judge all the effects of this tremendous power of credit, but we may be sure it will stimulate all war business to an extraordinary degree.

Sufficient Available Credit

It also should relieve ordinary business of any shortage of credit for legitimate needs. Ample but conservative credit resources should be available to any business man for carrying on his legitimate activities whatever their nature, because *though he may be making non-essential goods he is making absolutely essential money.*

Coupled with the power of granting credit and cash to war industries, the War Finance Corporation has control over all sources of capital for ordinary business enterprises. This is a proper function essentially, for of course the government financing must have the preference always, and it would be bad war business not to guard the supply of money against investments that would be a detriment to government financing.

War Orders Sufficient Regulation

Giving the war orders the preference is sufficient regulation of ordinary business. Giving only war business attention and encouragement is in effect proscription of usual business. The sound, economic policy will first guarantee the production of war material adequately, and then will promote to the fullest possible effectiveness general business of all legitimate kinds.

If the government will do its best for business to even half the degree that business is doing its best for the government, ways will be found to develop all our regular businesses without interfering in any way with war production. *The trouble is that the bureaucrats haven't tried to work with business, but have insisted that business must work for them.*

Business is resourceful. Finding itself hampered in the securing of its accustomed credit, it has devised for its emergency an instrument for the facilitating of credit that has long been disused, viz., the trade acceptance. With this instrument, business is building a stronger citadel of credit than it has had before.

Credit has too often been a source of weakness in the past of business, and business is undertaking betimes to cure that weakness in preparation for the future. It is practically certain that when the industrial pursuits of peace are resumed there will be no more enormous credits locked up in open accounts with more or less indefinite terms of maturity. It will not be necessary, for instance, that we sell in Latin America on six or nine months' time, and inadequately finance ourselves meanwhile by partial borrowings from our banks.

The trade acceptance is a commercial instrument with which we can make of our credit system a real citadel instead of a dangerous salient projecting far into the future of every business.

The American people have learned, too, the habit of investment. We are developing in our citadel of credit an army of twenty-five million security holders who have learned the economic satisfaction of true thrift instead of prodigality of its antithesis, hoarding. This sort of thrift is good, sound business to encourage. It is putting idle dollars to work, and it is the complement of the sound business policy of keeping all hands from idleness, too.

The War of Commerce

There remains to be considered specifically our citadel of commerce, which, as I said at the beginning, is an anomaly, since commerce cannot be carried on in a citadel. But we can pursue the metaphor of our subject by thinking of the long-range cannon we are building and can build in our so-called citadel of commerce which in reality is the outfitting point for our commercial expeditions. These are the cannon for our present and future trade battles of peace.

We have a cannon of commerce that will shoot to Berlin an explosive shell which will blow up the Hun delusion that a Teuton "strong peace" ever can be realized. The world's chief sources of wealth despite the partial temporary conquest of western Russia by Germany and Austria are nearly all in the control of America and of our Allies. This is a most powerful economic weapon. When the common people of Germany and Austria realize what they are up against economically they will perceive that *instead of being unconquerable, they are already licked to a frazzle in the business of the world for the future.*

The Merchant Marine

In our citadel of commerce we are developing a great merchant marine, backed by all the power of America's strength. More and more is it evident that our foreign trade, carried largely by our own ships, will be a tremendous factor in our working out of America's destiny after the war. I attended the Fifth National Foreign Trade Convention at Cincinnati last week. I thought before I went that I appreciated pretty well what our foreign business and an American merchant marine will be worth to us. But now I realize American shipping is absolutely vital if we are to win the war and continue to lead the world in prosperity after the war.

Marvelous Shipbuilding Results

Our new merchant marine is the insurance of our commercial future as a nation. Despite all the handicaps under which construction has been organized, our recent record is marvelous as a demonstration of what American business can do. I have quoted so many other figures that I will not give you the statistics of shipbuilding here. But in practically eight months we have increased the number of our shipyards from 37 to 81 actually engaged in shipbuilding, and from 40,000 employees to nearly 250,000 employees, and we are turning out ships right now *at a rate greater than Britain, the chief shipbuilding nation, was pro-*

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ducing in tonnage the year before the European war began.

Praise for Hurley

At the Foreign Trade Convention in Cincinnati it was generally recognized that credit for our achievement and prospects in shipbuilding belongs largely to Edward N. Hurley. I hope that the World's Salesmanship Congress, which was honored by an address from him last year, will officially express to Mr. Hurley at this session our appreciation as salesmen and sales-managers of what he has done on the job of strengthening America's citadel of commerce by building ships.

We need now seven and a half million tons of shipping. Only a great nation, served patriotically by big business men, can tackle and put through successfully an order of that size. America is able to do it because she has on the job such men as Edward N. Hurley and Charles M. Schwab, who was quite recently called into Uncle Sam's service. When we send Mr. Hurley our appreciation, I should like to have a telegram go also to our other distinguished guest of last year's Congress, Charles M. Schwab, telling him that we are confident he'll get results in the business of shipbuilding for America even better than he always has got results in his private business.

Confidence in Schwab

Ships, as I said a minute or two ago, are vitally necessary to the strengthening of our citadel of commerce. We must prepare now for shipbuilding competition with Germany after the war. She knows how to build ships more efficiently. American manufacturing and business genius, now that it is awake and applied to shipbuilding, does not fear the competition of any brains on earth. Directed and managed by Hurleys and Schwabs, our shilbuilding industry will conquer the world's markets for tonnage.

We have begun, also, to plant our outposts of finance in the world's most important market places. Who can doubt that America's immense resources will be organized for the business war after the war of arms? Germany backed her trade with her imperial resources. That combination was too strong for private business to beat. But Uncle Sam & Company will make Kaiser Bill and Me-Too Charles look like thirty cents when they buck American business in the commercial war that is coming.

Develop Salesmen Now

In our citadels of war we are equipping our army of soldiers for victory. In our citadels of business we should be developing a conquering host of salesmen to send out into the world backed up by American industrial genius in production and distribution of the articles of commerce. We are met here in this Congress to plan for the victories of peace as well as for the victories of war.

Preparations for victory often involve the endurance of setbacks for a time. A good many salesmen are made blue at present by the consequences of the war policy of discouraging business. They are not selling their lines because their houses cannot produce the goods. These salesmen are either working at manufacturing now or are out of work. They feel as if their careers had been blighted. But in reality these salesmen have within their reach the very finest opportunities for successful salesmanship, the chances to study how to sell and what they are selling.

Salesmen in the past have been woefully lacking in knowledge of selling principles and in knowledge of their lines. That kind of salesmen won't do for the war after the war. *We must develop in our citadel of commerce large numbers of a better type of salesmen than America ever before has had. If we do not equip these soldiers of peace thoroughly, we shall be thoroughly licked by the better salesmanship of our future competitors for world dominion in the fields of trade.*

Opportunity Is Great

Many salesmen have been transferred to factory work during the lull in selling activity. This, too, presents a fine opportunity for betterment of their salesmanship. I wish to say, also, in this connection that the bench and the trench are closely allied in this war we are carrying on. The salesman who is engaged in production temporarily instead of in the distribution of products is doing a helpful part of the necessary work of strengthening our citadels. It is a patriotic service, made necessary by patriotic necessities of business.

Business did not want war; but business will win the war, now that it is being given the chance. The government at last is showing a strong desire to utilize the best business brains of this country in the business of war. That is what I believe will get us on the right track. It is a great step of progress when the President summons men like Schwab, Hurley, Stettinius and others of importance to take charge of vital branches of our war-making. *Men of that caliber will iron out the mistakes of bureaucrats and untangle the red tape of inefficiency. As surely as we are met here in this Congress, the problems of business and war will be simplified from now on, because business is taking hold of the job that non-business found beyond its capability to handle.*

The appointment at this late day of such a big business man as Charles M. Schwab to fill a great place in the government is doubly significant. It not only guarantees the solution of our war business problems, but is a prophecy of the sort of men who in the future will, in my opinion, manage the political as well as the commercial business of America.

We are going to have a different grade of men in public office, at Washington, in our state capitols, and in our cities and towns, when America is reorganized for the business of efficient government after the war. The problems of the future will be chiefly business problems. Politicians have proved themselves miserable failures in attempting to do the country's business. The eyes of the people have been opened to the need in their government of the man who knows how to work, of the efficient organizer, of the economist, of the man who understands how to handle men and how to make money—in short, of the best business man.

Each for All—All for Each

The individual American cannot continue any longer the policy of each for himself and the devil take the hindmost. We are all interdependent. The new creed is each for all and all for each.

As Mr. Harris said at the Foreign Trade Convention last week, "A strike to-day in an essential business is a crime. Profiteering is equally so." And he also declared, "Constructive criticism is the highest state of patriotism." Apropos of that, Mr. Koster, the president of the San Francisco Chamber of Commerce advised last week in Cincinnati, *"Create yourself in your own bailiwick a committee of one to work out the solution of your own democracy."*

We business men must make it our business to see that government hereafter shall be on a business basis of efficiency. *That means business men in office instead of politicians.* It used to be said that a man like Charles M. Schwab could not be secured for government service. The patriotism of business, however, has been one of the glorious discoveries that have resulted from this war. Business men have been ready to work devotedly for their country in war and they will be equally ready in peace.

Business Government Needed

A man like Charles M. Schwab does government business efficiently in these abnormal times despite tremendous difficulties. *How much more effectively he can do government business under the conditions of peace when he is not handicapped by a critical situation!* Then he will have a chance to make a real demonstration of business ability. America in the future will give the business man the opportunity of service instead of trusting to the politicians whose weakness has been exposed by the war. The needs of peace for big business brains will be as great as our present war needs for the geniuses of business in office. And America will not take the backward step to political government after testing the efficiency of business administration.

To return to the business of war, I hope among other things that we shall give some business attention to conditions of danger inside our citadels. Our soldiers here in America need some target practice on spies. But first we must catch the targets. I read the other day that the Attorney-General's office reported it had no evidence that any of the fires in American factories this last year were the work of Hun agents. Well, all I have to say about that statement is it's about time the Department of

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Justice changed its system of collecting evidence afterwards, and started getting the facts in advance. You and I know these fires didn't just happen accidentally in epidemic form. America has been negligent in handling Von Papens, Von Igels, Von Bernstorffs, Boy-Eds, Kaltschmidts, and their like, except at the noose end of a rope or as targets for rifles. *Our citadels will not be safe until we clean house and get rid of the Huns in America by interring them instead of interning them.*

"Can" the Huns

I do not believe in vigilance committees. They are lawless. But unless lawful means for our internal protection are organized, we shall have more outbreaks of lynching and more mobs seeking pro-Germans.

Only a few days ago in one of the shops in Detroit we had an instance of what is going on all over America and growing more frequent. A man had refused to buy Liberty Bonds. He shot off his mouth about his opinions of America and Germany. Shop discipline prevented an outbreak then. But that noon several of the workmen got a new rope and made a noose on the end. They laid that on the pro-Hun's bench. It is reported that he shut up darned quick and signed for some bonds.

There are enough patriots in every block of any American city to insure our internal safety, if the patriots are organized for active service against the foes within our citadel. I hope that the government will not wait until riots result from laxness. The measures of self-protection should be preventive. We should take them in advance. And punishment for spies should be quick and severe, at the hands of the lawful authorities, not at the hands of the mob.

Listen: Mr. Salesmanager!

But I wish to say a word or two to the salesmanagers of America, who want to strengthen our citadel of commerce. You are experiencing a lull in your sales activities. *Do not sit idly twirling your thumbs while you wait for the war clouds to roll by.* Use your opportunity to study your territory, selling-management principles and new methods of trade-winning and keeping. Sales management in America has been very inefficient, especially so when applied to foreign trade. Such inefficiency will be fatal in the new condition of business which will obtain all over the world after the war.

Salesmanagers, particularly devote yourselves to the proper training of sales people in your employ. Impress on your men the importance of selling-knowledge. Make sure of the efficiency of your salesmen by working out detailed reporting and record-keeping systems. Do not rely on generalities and guesses.

Made in the U. S. A.

Study how you can co-operate with the retailers of your goods, how to get your goods to ultimate consumers. Educate everybody with whom your concern has any relations, in the importance of pushing products "Made in U. S. A." The mark that should be on everything produced in American factories, and buyers and consumers should be educated to look for it. If it is missing they should assume that the goods are of foreign make, and should insist on American-made goods instead, if they are manufactured. This would prevent the building up of foreign sales in this country of products we can furnish from our own resources.

We cannot sit tight in our citadels and complacently conquer the world trade now that we have it coming our way. We must get out and hustle our level best. Some European nations know as much about efficiency as we do and this war has helped them. When Europe is re-built the work will ge done by the most efficient workers. We should lead that class, instead of lagging. I am proud that I am an American. I know we can do the biggest job ever put up to a people. *But I know we can't do it if we wear rose-colored glasses when we look at our own inefficiency and blue glasses when we look at the efficiency of our trade rivals among the nations.*

Must Get to Work

We haven't got the world by the tail economically, as a lot of our American business men seem to believe. We must not think we can sun ourselves in the beams of prosperity behind our citadel walls, and get rich from the trade that will come to our ports after the war. We've got to sell our products. They won't be just bought. We are a great creditor nation, and our debtors are not going to run up any larger bills unless we make it decidedly to their interest to buy from us instead of making their own goods. We salesmen must take up the job of serving the world and of saving ourselves; just as our soldiers are doing. We want to fight the war after the war "Over There" instead of over here. We need to prepare for it now in our citadel of commerce.

But ours is a different kind of conquest. Military victories are not permanent. The greatest general of history, Napoleon, compared his futile successes with the growth of the power of love in the world, and acknowledged that Christianity was a greater conquering force than the mightiest armies. Christ taught us the principles of Service to our fellow men. We have begun to use his teachings as practical business precepts.

The Great Idea

We must stick to Christ as the ruler of our thoughts and lives. Devil methods of warfare will be beaten. The doctrine of true Service to which we as salesmen are sworn is invincible. The destiny of America is to Serve the world by selling friendship and good-will to all the nations, to displace their enmities.

God has let men prove to themselves what they would not learn any other way, that man-made methods turn the world into a hell of hates. We must learn the lesson, and not need to be taught it again, that this earth can be made heaven only by the practice of love and peace. Our mission as salesmen is Service, which is the divine principle of love in practice.

Greater than our citadels of Cash, Credit, and Commerce is our citadel of Christ. There we must equip ourselves for the True Service of Mankind.

Keep the Sales Fires Burning

(*Continued from Page 5*)

the field of the salesman is undergoing a change at present because the intrusion of war work has made the demand greater than the supply of many products and it was pointed out that the live salesman may find in this condition an opportunity to fortify himself against the near future and peace period.

Once again the parallel of business in Canada was cited, and it was shown how the Dominion has been able to give a wonderful support to the war largely because its business has been permitted to expand to hitherto unthought of degree.

The mental attitude of the people was discussed as one element of national strength, and it was urged that the public be not thrown into a state of pessimism by unwise and unnecessary disturbance of business, although all were agreed that the war program must be given the fullest support at every point.

Advertising must be continued even though there be absolutely nothing to sell, stated one speaker, provided that the manufacturer does not wish to lose the goodwill which he has built at a great cost.

Over-optimism was deprecated as one of our dangers; several of the speakers said we could do ourselves much harm by thinking the situation too rosy, for we might thereby be lulled into a security which would be upset by the earnest efforts of the enemy.

It was suggested that restrictions be put upon German language papers, and energetic handling of pro-German well-wishers was recommended.

Greater harmony between capital and labor was declared a necessity, one speaker asserting that the relationship must be more on a fifty-fifty basis and that the laborer must be assured a fair interest in the production he creates.

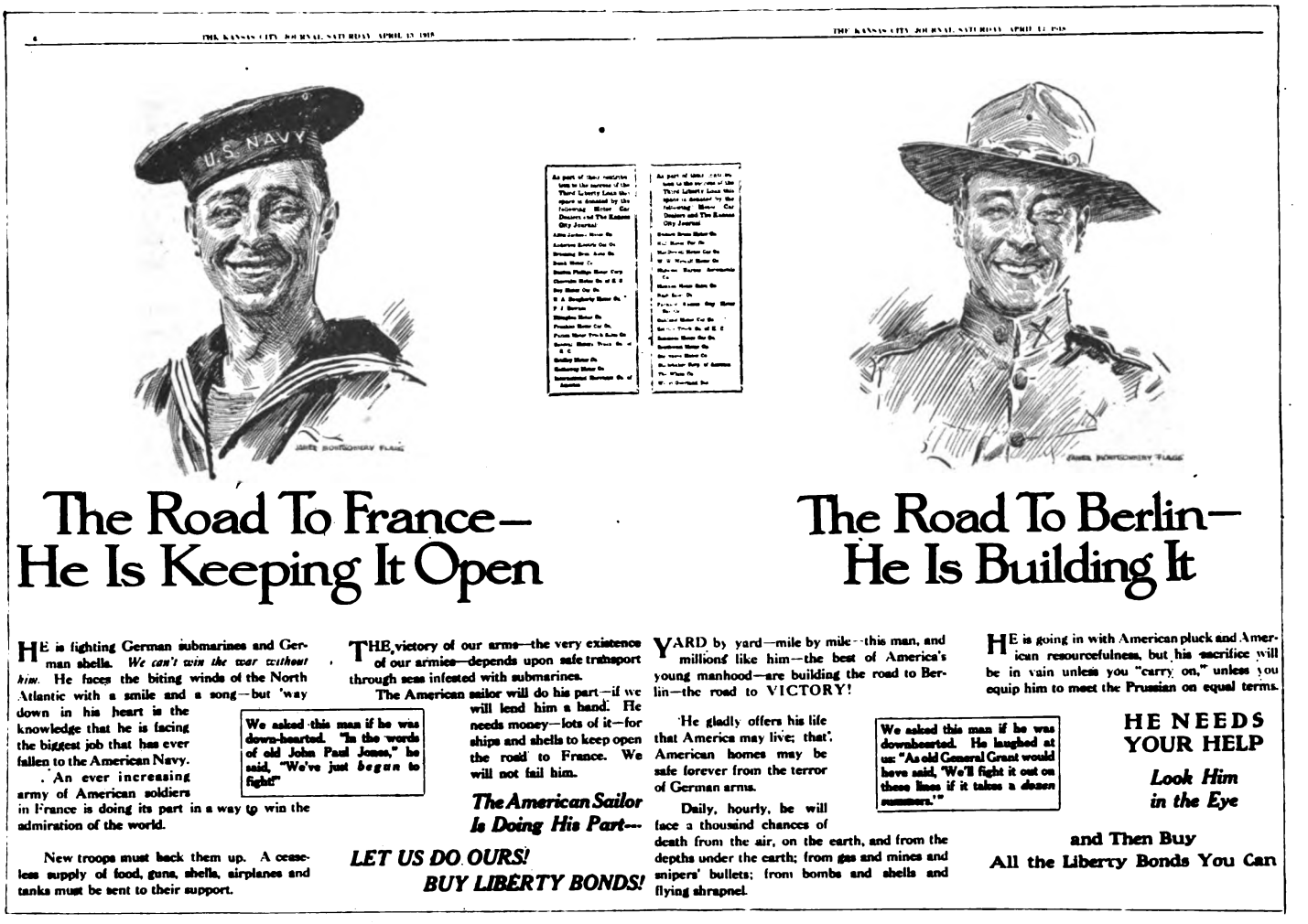
A New Zealand speaker told of the extent to which business has increased in that country during the war. He urged business men to effect economies, such as using trucks in place of horses and installing office appliances. He said it was a question of doing more work and not less.

The Congress this year, held in the Statler Hotel ballroom, was not so well attended as in other years. When the first session was held in the summer of 1916 and was opened with an address by President Wilson, there were about 3,000 people present. The convention last year, which was opened by Charles M. Schwab, drew slightly less than the first year. This year about 320 registered and most of the sessions were attended by only from 75 to 100 people. The war is considered to have upset things considerably.

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Kansas City Dealers Use Two-Page Loan Ads

The reproduction below is of a two-page newspaper advertisement run by the Kansas City dealers whose names appear in the panels at the center of the layout



THE KANSAS CITY JOURNAL, SATURDAY, APRIL 13, 1918

The Road To France— He Is Keeping It Open

HE is fighting German submarines and German shells. *We can't win the war without him.* He faces the biting winds of the North Atlantic with a smile and a song—but 'way down in his heart is the knowledge that he is facing the biggest job that has ever fallen to the American Navy.

An ever increasing army of American soldiers in France is doing its part in a way to win the admiration of the world.

We asked this man if he was down-hearted. "In the words of old John Paul Jones," he said, "We've just *begun* to fight!"

New troops must back them up. A ceaseless supply of food, guns, shells, airplanes and tanks must be sent to their support.

THE victory of our arms—the very existence of our armies—depends upon safe transport through seas infested with submarines.

The American sailor will do his part—if we will lend him a hand. He needs money—lots of it—for ships and shells to keep open the road to France. We will not fail him.

The American Sailor Is Doing His Part—

LET US DO OURS!

BUY LIBERTY BONDS!

The Road To Berlin— He Is Building It

YARD by yard—mile by mile—this man, and millions like him—the best of America's young manhood—are building the road to Berlin—the road to VICTORY!

He gladly offers his life that America may live; that American homes may be safe forever from the terror of German arms.

We asked this man if he was downhearted. He laughed at us: "As old General Grant would have said, 'We'll fight it out on these lines if it takes a dozen summers.'"

Daily, hourly, he will face a thousand chances of death from the air, on the earth, and from the depths under the earth; from gas and mines and snipers' bullets; from bombs and shells and flying shrapnel.

HE is going in with American pluck and American resourcefulness, but his sacrifice will be in vain unless you "carry on," unless you equip him to meet the Prussian on equal terms.

HE NEEDS YOUR HELP

Look Him in the Eye

and Then Buy All the Liberty Bonds You Can

Philadelphia Has a Liberty Loan Bulletin in Headquarters

TWO MILLION DOLLARS SUCCESS—

THIRD LIBERTY LOAN

GROUPE 3— W.B. McCullough, Chairman—

LESS THAN TWO MILLION FAILURE

TRADE 'A' MOTOR CARS A.E. MALTBY, CHAIRMAN. W.A. ALMY, VICE CHAIRMAN — 'B' TIRES — 'C' ACCESSORIES

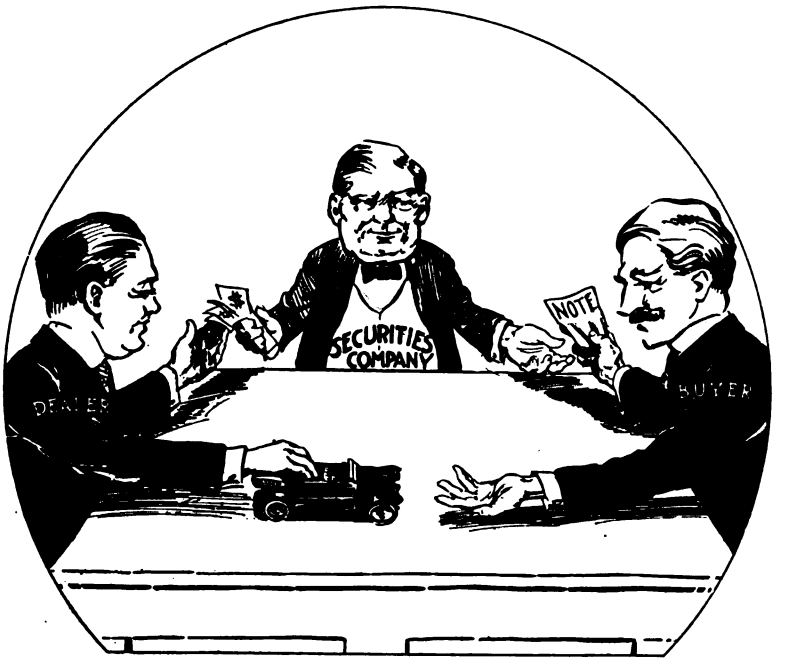
	TRADE D	TOTAL FOR 7 DAYS	TOTAL FOR 14 DAYS	TOTAL FOR 21 DAYS	TOTAL FOR DRIVE	AMOUNT TOTAL GROUP 3
	OPTICIANS	5,080				104,100
	JOS. HABER					144,050
	OPTOMETRISTS	13,900				254,800
	J.H. FLANAGAN					338,150
	MOTION PICTURES	50,000				380,150
	FRANK BUEHLER					465,100
	PHOTOGRAPHERS AND SUPPLIES	21,500				
	ALBERT BYRKIT					506,500
	TRADE E.					351,550
	VEHICLE AND WAGON BUILDERS	31,300				
	TRADE F					
	G.W. TAYLOR					
	STORAGE HOUSES	78,500				
	TEAMSTERS	150				
	EXPRESSERS	600				
	TRADE F	79,550				

	TEAM No. 1	TEAM No. 2	TEAM No. 3	TEAM No. 4	TEAM No. 5	TEAM No. 6	TEAM No. 7	TEAM No. 8	TEAM No. 9	TEAM No. 10			Accumulative
APRIL 6	51,500			600			30,000		5000		1000	12,000	
" 8					30,000						3300	200	
" 9		6,300		1,600		25,200					2700		
" 10		1,650						17,600		1,000	1,700	6,600	
" 11	2,350	500	350	3,100	10,800	150	3,500	1,550	750	5,000	2,700	4,100	
" 12	10,000	1,000				1,350				12,250	15,250	1,450	
TOTAL FOR WEEK	61,850	10,850	350	5,300	40,800	26,900	33,500	19,150	3,750	18,250	24,650	24,350	
APRIL 13		300						26,500		2,100	52,750	2,500	
" 14													
" 15		6,930		5								5,100	
" 16													
" 17													
" 18													
" 19													
TOTAL FOR 14 DAYS													
APRIL 20													
" 21													
" 22													
" 23													
" 24													
" 25													
" 26													
TOTAL FOR 21 DAYS													
APRIL 27													
" 28													
" 29													
" 30													
MAY 1													
" 2													
" 3													
" 4													
" 5													
TOTAL FOR DRIVE													

This big board was posted in the club rooms of the Philadelphia Automobile Trade Association, where the various teams in the organization watched the scores each noon and then went out to "put over some more" before the next posting of figures

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Taking the Grief Out of Time Sales



By Ben S. Brown

SECURITIES companies recently organized in Kansas City are developing the financing of motor car purchases just at the time when banks are discontinuing such financing.

For the past two years several large Kansas City banks have, in addition to their financial service to dealers on the buying of stocks, arranged through their own organizations for handling the paper of the dealers' customers. The business has been, it is said, most profitable and safe; but war and other conditions are said to have necessitated the discontinuance of such operations.

Stimulates Sales

Into this breach come the securities companies, whose sole business is the buying of notes made to dealers by purchasers of automobiles. The banks encourage the securities companies which are well backed and responsible; it is good business for the banks—and also stimulates the sale of motor cars, and that indirectly stimulates business generally.

The Inter-State Securities Co. of Kansas City provides a good illustration of how these companies operate. James A. Snoddy, until September wholesale manager of the Ford Motor Co. at Seattle, Wash., was visiting last fall at his old home near Kansas City where he had practised law. A movement was then in progress for the organization of a company to finance the purchase of Ford cars. The organizers got in touch with Snoddy, with the result that a company was incorporated for $50,000 and Snoddy was made president and manager. The company started business Oct. 1.

The Inter-State Securities Co. so far has specialized on the financing of Ford purchasers; a considerable number of Ford cars bought through Kansas City dealers since Oct. 1 on time have been entered on the books of this company.

There is no contract between the company and the Ford factory or any other dealer, putting any obligation on the dealer or company. The company has provided the facilities for handling the notes and the dealers, purely as a commercial proposition, have taken advantage of these facilities. Not all the Ford dealers, however, sell their notes to the Inter-State Securities Co.

How Plan Operates

In practice the company's plan operates something like this: The dealer has a chance to sell a car. He discovers that the purchaser wishes to buy on time. The dealer knows about what discount the Inter-State Securities Co. requires when the note will, for instance, cover 50 per cent of the value of the car, payments extending over six months. Then the dealer negotiates with his customer and makes a flat price for the car on the time basis.

In the large majority of cases the negotiations will proceed quite as though the dealer himself were to handle the paper. Frequently the dealer will get the customer's statement as to his financial condition, his business, etc., satisfy himself that the risk is good, have the papers for the sale executed when the order for the car is given, and retain all the documents in his own office until delivery of the car is made. When the dealer wants his money on the time end of the bargain he takes the note, with the customer's statement, to the Inter-State Securities Co. and explains all the circumstances, and gets his money less the discount.

The Inter-State Securities Co. notifies the customer that it has bought the note and that payments are to be made at its office on dates which are in accordance with the terms of the note.

The notes from the customer to the dealer are indorsed by the dealer to the Inter-State Securities Co. usually without recourse. The statements made by the buyer to the dealer are also indorsed merely as a recommendation by the agent. Ordinarily this indorsement of the dealer carries no financial responsibility.

While in the main they are generally understood, there are no hard and fast rules with reference to discounts, indorsements, payments, or the process by which the Inter-State Securities Co. ascertains the data upon which it bases its acceptance of notes.

A dealer may, for instance, have a chance to sell a car under conditions that on the face of them might preclude a loan or note. The dealer himself may be confident that the purchaser will pay, but in the ordinary course of business he might not be able to explain his confidence. In such cases th dealer usually explains the special circumstances to the Inter-State Securities Co., and if the risk looks good to the company the dealer is told to go ahead. Frequently arbitary propositions are made to dealers after special circumstances are explained.

Experienced in Credit

It sometimes happens that the Securities company is even more liberal with reference to risks than the dealer himself would be. Obviously the Securities company with its larger resources would better be able to stand a loss, but this is not the psychological sequence of the liberality. The secret lies in a somewhat broader experience with credit and with human nature—and the knowledge of the Securities company officials that with their facilities they are quite likely to keep track of the purchased car and to get their money out of it.

Sometimes the confidence is on the other side. When the dealer is sure a purchaser is good, but the circumstances do not look so to the Securities company, the dealer is asked to indorse the note. In almost every case, however, the dealer relies upon the judgment of the officials of the Securities company.

The comparative simplicity of the oper-

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ations of the Securities company is explainable from the following statement by Manager Snoddy: "Without intending to make any comparison at all, we have found that if a man has been a Ford dealer for any length of time he is likely to be dependable in matters of business. The few exceptions prove the rule."

In other words, the Securities company relies largely on the kind of men it does business with. While it has not heretofore handled notes of dealers of other cars, there is nothing in the organization to prevent it from taking on others. It is apparent that the character of the dealer has quite as much to do with the prospect of his clearing his notes through the Securities company as has the kind of car he sells.

While it has been stated that the dealer depends upon the judgment of Snoddy, there is seldom an occasion for such dependence, however, as the Inter-State Securities Co. is inclined, as a usual thing, to depend upon the judgment of the dealer. If the customer looks good to the dealer he is usually good enough for the company.

Covers Big Territory

The Inter-State Securities Co. has only one office, at 708 Commerce Building, Kansas City, Mo. It is, however, handling notes for many dealers—all Ford agents—in Missouri, Kansas and even in other States.

The question was asked Snoddy as to whether more care has to be exercised with reference to the notes when the dealer sending in the notes was not a resident of Kansas City. His reply was that after the usual preliminaries of getting in touch with the dealer, becoming acquainted with his methods and character and forming an estimate of his business ability, the country business is looked upon as safer than city business.

As a rule, country people take care of their obligations better than city people; country people think less often about getting the best of somebody else and they are, as a class, more accustomed to paying their bills and paying promptly. Country people have neither the inclination nor the same opportunities as some city buyers to get away with their cars; and cars are not as frequently stolen in small towns and rural districts as in the city.

Looks Up the Buyer

The Inter-State Securities Co. has been financing the purchase of used cars exactly as in the case of new cars, with this exception, that Snoddy almost invariably investigates the character of the purchaser and the details of the purchase when a used car is to be bought. From Oct. 1 to March 1 only two cars were taken back by Snoddy on default of payment. Both of these were used cars when sold. One of these Snoddy sold immediately for enough to get clear on, while the other is yet unsold.

During the five months only seven cars financed by Snoddy were stolen. Two of these have been recovered. The Securities company requires the purchaser to take out fire and theft insurance. No other insurance is required on Ford cars, though the company is privileged to do so. The fire and theft insurance is almost invariably placed through an agency selected by the company.

The service to the public and to the industry of such institutions is considerable. The banks in many cases helped to finance purchase of cars because no other agency had appeared to do it, and there was economic necessity for the purchase of the cars and their use as soon as possible. But the financing of purchases of cars was not a banking duty.

> The Buyer gets the car.
>
> The Dealer gets his money.
>
> The Securities company takes the notes and does all the worrying.

There is no doubt that the Securities company is more liberal in its treatment of customers than a bank would be in the original negotiations. The Securities company, like the bank, however, tends to force prompt payment of obligations and is in a better position to do this than a dealer would be.

It would appear, too, that banks are more ready to lend resources to a securities company than it would be to a dealer or to some other agency not so well established nor so definite and highly specialized in its line of work.

When the securities companies first appeared on the scene there was much fear lest they encourage the purchase of automobiles by people who could not afford them. It is apparent, however, that this matter is automatically taken care of in the ordinary course of business.

Sometimes Says No

It is obvious that a person who cannot afford a car is probably not going to keep up the payments on it, and the Securities company is therefore not going to burden its books with such customers. Occasionally purchasers are turned down by Snoddy because he does not believe they can afford a car—he is not seeking to protect the customer from an inordinate and foolish desire to buy a car, but he is protecting his stockholders from a possible loss.

Doubtless the operation of securities companies on such a basis will be beneficial to the dealers who sell their notes to it. Furthermore, the dealers can get away from the notion that they can't afford to let a prospect get away. Their business methods will become more business like.

There probably always will be the wildcatter and the predatory class of dealers who are grabbing at a chance to sell. These will, as in the past. have to take their chances on their own responsibilities. They are the kind of competition that the more conservative dealers don't like—but there seems no chance to reform them.

A securities company seems to be able to deal more vigorously with the "speculator" than an individual dealer could. Kansas City has very pronounced speculator instincts—the evidence is strong enough to convince a motor car dealer, although possibly not sufficient to get the crooked one into jail. Here is one instance.

Caught a Bad One

A man bought a Ford from a speculator in Kansas City. He received an invoice declaring that there was no lien on the car—the invoice mentioning the number of the car, which was made up of three digits. The man thought it was a new car. He took it out to his home in Kansas and tried to get a license.

The county treasurer, who was familiar with Ford numerals, suggested that there was something wrong. The Ford numbers are running up into millions now. The owner called up the speculator who had sold him the car and asked him the number. By some freak of accident the speculator gave the man a number in the millions. The man brought his car back to Kansas City, went out to the Ford factory and traced the car of the number which the speculator had given him over the telephone into the office of the Inter-State. It was a car the sale of which Snoddy had financed; somebody had filed off part of the number.

Avoided Trouble

The speculator had made an engagement with the man to whom he had sold this car to discuss the matter. The car was driven to the speculator's place of business and in some way or other had been taken in by the garage. Snoddy, after hearing the facts, sent a man out to get the car. The man went into the garage and drove out with it. The speculator threatened trouble, but none ever developed.

It sometimes happens that the purchaser of a car who is financed by a securities company is in league with a speculator or a gang of thieves. A man accustomed to giving credit, however, can usually scent such a customer, and only a little extra care is needed to disclose his character and avoid any loss.

So far the number of cars financed by the Inter-State company which have been taken out of the State legitimately by their owners has not been large, and those taken out illegitimately are much fewer in number. The problem has not yet arisen, therefore, as to caring for the collection in certain instances. It seems to be as easy to get the payments made when the customer is a thousand miles away as when he is three miles.

And this suggests again the simplicity of the operations of the company. Ordinarily only one notice is sent to a customer informing him that his payments are to be made at the offices of the company. This is sent ten to fifteen days before the first installment is due.

A large majority of the customers

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come in promptly month by month with their payments, just as they do with their rent and their water bills. Sometimes a man will fall behind, and after he has failed for four or five days to show up he gets a telephone call. There are two telephones on Snoddy's desk and he never writes a letter when he can use the telephone.

The telephone gives a personal touch to the communication. However friendly the tone of a letter may be, it cannot possibly be as friendly as the tone of voice.

In most cases the customer declares effusively that he has overlooked the matter, and usually he shows up with the money or a check comes in the mail. Letters are sent out, however, to follow up those who do not keep their promises. Letters go faithfully to the people who have no telephone.

On the manager's desk are laid every morning the cards of the customers whose installments have passed maturity. Each card bears notations as to what action has been taken on the present and previous delinquencies. As the business has grown Snoddy has kept in personal touch with each of these customers, at least through the cards, so that he can tell at a glance about what action should be taken. After his telephone conversation he may make a notation on the card that this card must come before him again in five days, unless meanwhile the customer has paid. As the number of customers increases, however, the necessity arises of more complete card notations that bear on credit and the liberality with which a customer shall be treated.

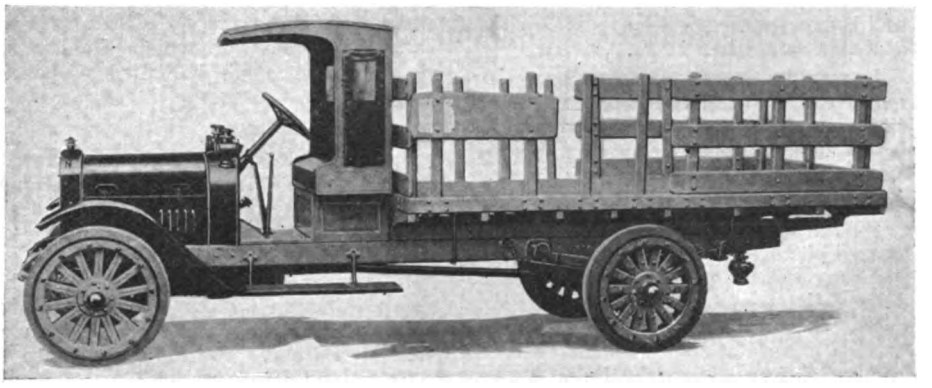
The concentration of motor car financing in the securities companies is proving a useful method for the interchange of credit information on persons buying cars on time. In several cases the men have tried to buy cars, only to discover that for some reason their credit is not good. Since nearly everybody is worthy of trust, the disappointed purchaser has a right to presume that others besides the particular firm he has previously failed to pay know about his delinquencies.

The layman might assume that experienced detectives would be employed to investigate the people who ask credit and to help run down stolen cars or defaulting customers. But this is not the case. The only two requirements of the employees are that they shall be honest and that they shall have common sense. Investigations have been so greatly simplified through the telephone that little time is consumed in getting the information—and the impression—upon which to base credit.

The financing company becomes an expert on time sales and all the grief that might be connected therewith. It specializes to such an extent that nearly all the grief is eliminated.

Standard Parts in Jumbo Truck

Nelson Company to Concentrate on 2½-Ton Model Selling at $2250



Jumbo 2½-ton standard stake body truck which sells for $2250

THE recently organized Nelson Motor Truck Co., Saginaw, Mich., is going to standardize on the 2½-ton size which will be styled the Jumbo, and this will be produced in as large quantities as possible. It will sell for $2,250, this including the chassis with driver's seat, fenders, lamps, tools and solid tires. Bodies may be made to order at the Nelson factory where special provisions have been made for this kind of work.

The power plant includes a Buda HU, four-cylinder block engine, 4¼ x 5½ in., and a Fuller gearset and clutch in unit with it. The flywheel is enclosed and the engine three-point suspended. Ignition is by Eisemann magneto, type G-4, the spark being fixed. The Zenith carbureter has a hot air attachment. Force feed lubrication is by gear pump and cooling by a G & O radiator with cast iron base and removable core. The circulation is maintained by a centrifugal water pump. Fuel is fed by gravity from a 13½ gal. tank under the seat. A Duplex governor, driven both from the engine and drive shaft, governs engine and vehicle speed independently.

The clutch is dry plate, multiple disk type, with Raybestos lining, and the gearset is selective with three speeds and reverse. Gears and shafts are 3½ per cent nickel steel on ball bearings.

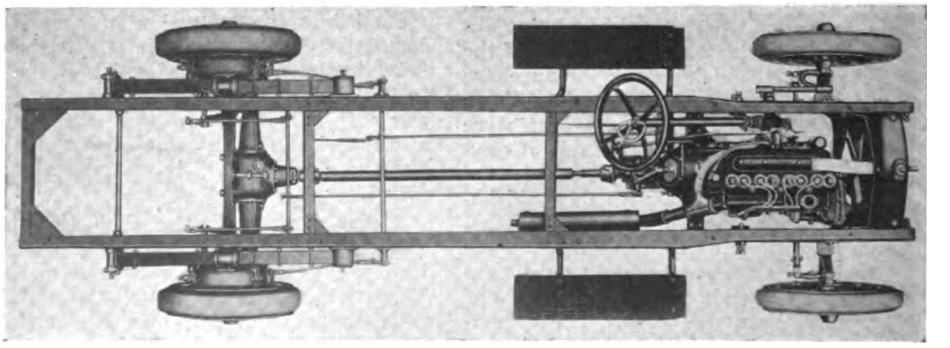
The axle is a Celfor internal gear drive with a high-gear ratio of 8:1. Drive is through a propeller shaft with two universal joints. The Prudden wheels have fourteen spokes 2½ in. square, front and rear. These are fitted with single solid rubber tires 35 x 6 in. all around. Wheel bearings in front are Timken and the rear bearings are Bower and Hyatt. Semi-elliptic Detroit springs are used, the front being 40 x 2½ in. and the rear 54 x 3 in. The front axle is an I-beam drop forging.

Two Sets of Brakes

There are two sets of brakes, the service set external contracting and the emergency internal expanding. The steering gear is a Jacox, block and worm type, adjustable for wear. Steering is from the left side, the gear shift being central. Hand and foot throttle are provided.

The standard wheelbase is 144 in., front tread 56 in., and rear tread 59 in. The frame is pressed steel, ¼ in. thick, 208 in. long, 34 in. wide and 5¾ in. deep, well braced with cross members. The chassis is finished in standard Nelson gray.

Jumbo trucks have been in the process of development for nearly two years, and have had a year's practical service before the manufacture was started. Several well known and thoroughly tried units are used in the assembly, including the engine, rear axle, wheels, magneto, radiator and steering gear.



The Jumbo chassis is cleanly laid out and well braced

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Wanted: Real Motor Truck Salesmen

By George W. Grupp

"No real business man would buy a truck, if it is a new idea with him, without first consulting an expert representative of transportation vehicles to look over his delivery problems—and then heed the advice of the expert."

A MOTOR truck, if it is to stay sold, must be sold by a real motor truck salesman. Not for a minute should one liken the sale of a motor truck unto that of the sale of foodstuffs—selling by price and looks of the commodity.

There is something vitally more important. And the motor truck salesman who thinks prices, looks and bluff are the only essentials will soon find himself lost in fog. Gibberish and jargonistic talk is fatal.

Braggadocio is equally dangerous. And yet there is a young army of braggards, swaggerers, gibberishites and jargonites who pose as motor truck salesmen.

All of this reminds the writer of an opportunity he had last summer to observe the performance of a truck in an isolated section of this country. For 2 days, from morning until night, he studied every movement of that truck. The words marvelous and wonderful do not begin to describe the performance of it. But in spite of all that, he could not make himself believe that the truck would live its natural length of life. The reason is a simple one. The roads were terrible. The average grade was 16 per cent and an overload of three-fourths the truck's capacity was always carried.

How One Man Buys a Truck

Who sold this man his truck and how came its owner to buy it? were questions which the writer could not leave unanswered, so he went to the owner and asked him. This is what the owner said:

"Well, after reading and hearing so much about motor trucks, as to what they could do better than horses, I sent for some literature and for a representative of a truck and tractor. After making a very extensive and exhaustive study of my particular business, roads, etc., he recommended a very heavy tractor. What he said sounded all right, but the cost was too much. In fact, it was more than I wanted to spend."

Poor Buying Methods

"As you haven't one of his trucks or tractors how came you to buy the truck you have?" the writer asked him.

"Oh, I learned a lot from that representative, and I put it to good use. I heard of a good make of truck, just as good as his, and I went to its agent and bought one."

"Without having this agent first look over your ground, and against the advice of the representative of the truck and tractor you bought your truck outright?"

"Sure! What was the use of him coming out to see me? I knew what I wanted. Besides, as train service is very poor, he would never be able to get here without having to spend several days coming and going, or he would have to motor 200 miles."

This one can safely call a good example of mess, all around—and this in spite of the fact that this particular owner can afford to junk his truck in less than a year because of the great saving it is over horse-driven vehicles. The writer knows this to be gospel truth because he is in the possession of actual cost and performance figures on this truck. But even that does not excuse poor salesmanship and lack of sound judgment in making a purchase.

No real business man would ever buy a truck, if it is a new idea with him, without first consulting an expert representative of transportation vehicles to look over his delivery and hauling requirements and then heed the advice of the expert. And no real truck salesman would sell a truck to one whose business requirements for delivery he does not know. He is perfectly aware that the duties which will be required of a truck will determine its life. He knows that every truck which is junked within a year's service, in spite of its being able to pay for itself within that period, is not the best kind of advertising he would like his truck to have. He weighs the opinion of the public which observes the short life of his truck and what effect it will have upon future sales.

Expert Advice Needed

Coming back to the truck owner who was exemplified in this article, let me say that he should have heeded the advice of that tractor representative. The investment, no doubt, would have been greater, but the life of the tractor and the increased earning powers would have soon offset the increase in investment. The tractor's life would have been four to five times as long as the truck which he bought. Perhaps after this truck owner finds that the investment on three trucks is greater than one tractor he may reform.

Now, as to the salesman who sold this truck to this gentleman, how does he explain this situation? To be real frank with you, he never tried to explain it to me. But in a general way let us ask these questions: Was he greedy for commissions? Didn't he think it necessary to go out and look the ground over—thinking perhaps that his prospect knew better what he wanted? Or did this prospect force this particular sale?

As a matter of information to the writer he does not care which answer to the above questions is the correct one. But he does know that the truck salesman never saw the place his truck

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was headed for until he delivered it. The truck driver told me that he was "scared stiff" when he saw the sharp turns, steep grades and rough roads his truck had to climb along the edge of a deep gorge. He then began to realize, perhaps, that "the wages of sin is death."

The most idiotic undertaking which a salesman can do is to sell a truck to one before having first made a very careful study of his prospect's business so as to properly estimate the right type of body, capacity of truck, and, more than that, to actually determine if the prospect really needs a truck. Selling a businessman a white elephant is dangerous business.

"You can fool some of the people all of the time, all of the people some of the time, but you can't fool all of the people all of the time."

All men who are making their daily bread and butter from either manufacturing or from selling motor trucks should never permit themselves to stoop to such slovenly methods. Amnesty is an exceedingly poor excuse for lack of good common sense. Moreover, no truck manufacturer should permit his good name to be tarnished, in any particular, by employing salesmen who don't know their business, who are too lazy to make a careful study of a prospect's delivery problem, who are so greedy for commissions that they see nothing else, who are too lazy to help the owner get the best results after the truck is delivered, or who will sell a truck for fear some competitor will "beat him to it" in making a white elephant sale. What some truck salesmen must learn is this: What counts most is not how much money you will get out of a sale, but how much manhood you can pack into a sale.

When a salesman carries out the last suggestion he can feel confident that he is a success. His deeds will speak for themselves and they will bring bacon and shoes not only to his family but also to the families of the hundreds, yes, thousands, of workmen and executives at the factory who are making it possible for him to earn a living. No truck salesman should make a sale which will indirectly endanger the livelihood of hundreds of innocent and honest souls at the factory—not in the most teeny-weeny way.

Texas Getting Truck Line

DALLAS, TEXAS, April 29—To cope with the freight congestion in the Southwest and this section especially motor truck freighting companies are being organized. The first was formed recently at Dallas. It operates between Dallas and Tyler, a distance of 100 miles. Fifteen trucks are in operation. A regular schedule between the towns is observed and to date not a trip has been missed. This company is known as the Dallas Freight Truck Co.

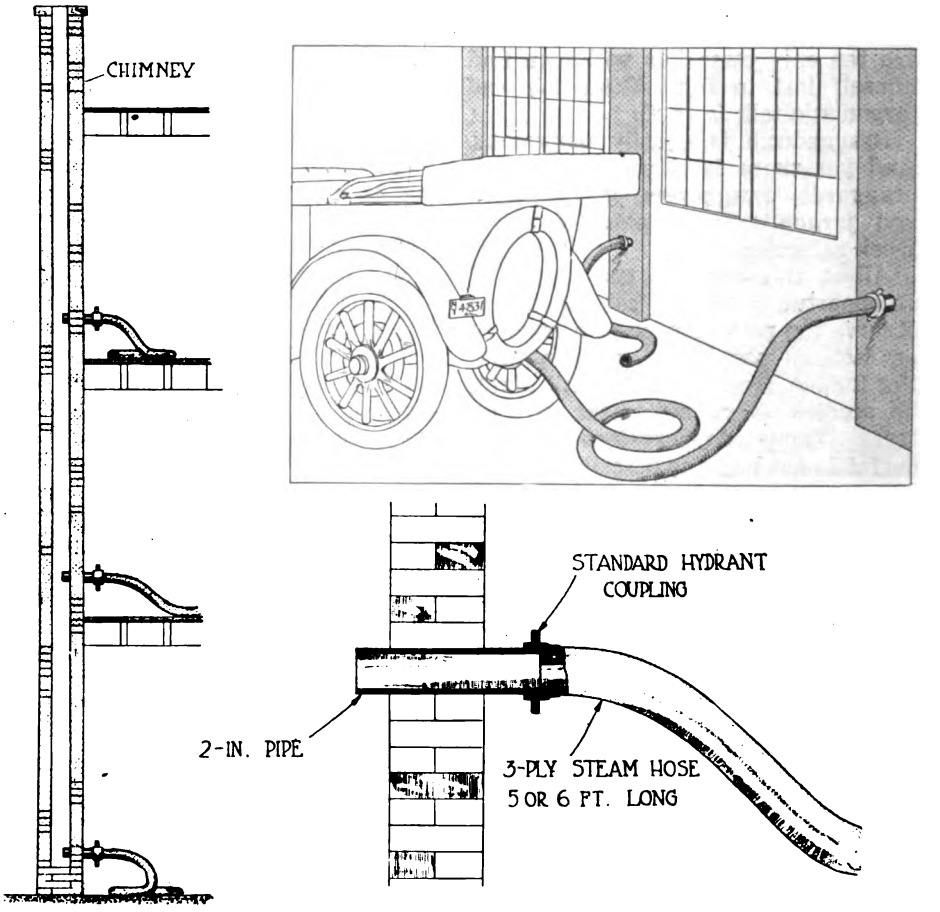
No Exhaust Fumes in This Garage

WHEN a man steps into a garage, as a general rule he can tell that he is in one, even if you were to blindfold him. The smell of burned gasoline and oil, while it may still be "breath in his nostrils" to the racing driver, has, however, certain disadvantages when freely loosed in a closed garage.

Aside from the very acute danger of gas poisoning in small garages, the impure air has a bad effect on people even where there is more air space. Another thing to take into consideration is the fact that nowadays many ladies drive their own cars in and out of the garage, and this sort of blue fog is not a thing which they will go out of their way to get into.

One man who has given this subject careful consideration is Henry Loughman, operating the Manhattan Garage, 130th Street and Old Broadway, New York. When the garage was built, a half dozen regular chimney breasts were distributed around the walls of the building to act as conveyors for exhaust gases.

Into the flues are run pieces of 2-in. iron pipe on each floor. These nipples are threaded in the regular way and sections of three-ply rubber steam hose with regular hydrant couplings can be readily attached and detached. As it would seldom happen that more than two or three cars on any one floor would be running their engines at the same time, it is only necessary to have about three pieces of hose on a floor, and these can be quickly coupled to the nearest pipe. For cars with two exhaust pipes, an extra long piece of rubber hose is used for one side to connect to the far pipe, and the other side connects to the near pipe. It is not necessary to cover or cap the pipes when they are not in use,



because the natural draft is always upwards, and a car exhausting into a chimney on a lower floor would not cause any smoke to come out on the upper floors even if left open. The system works so successfully that one is instantly struck by the absence of smoke and smell in this garage.

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The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer.

THE LAW

As It Applies to
Dealers
Repairmen
Garagemen

By George F. Kaiser

Questions on Credit

Editor Motor World: As most of my customers are farmers I do a great deal of credit and every now and then some customer becomes dissatisfied and won't pay for his work and repairs. I would like to know how I can collect such bills after the cars go out of my possession. Could I take out an attachment against any stock or grain they have to ship? Could I attach the car while it was in the possession of another garageman? Is there any sort of agreement that a garageman could have a customer sign so that the garageman will not lose the money due him for work and repairs?—Inquirer.

Answer—The Illinois lien law, which was approved June 21, 1917, provides:

Garage keepers shall have a lien upon any motor vehicle, parts and accessories thereof, kept by them for the proper charges due for the keeping thereof, the repair thereof, the materials furnished thereto, and the expenses bestowed thereon at the request of the owner, or the person having the possession thereof; provided, that such a lien shall not apply to motor vehicles, parts or accessories sold on conditional sale while the vendor remains unpaid; and provided, further, that the contract of sale or mortgage of the conditional vendor has been filed for record in the recorder's office in the county in which said sale takes place, before any lien sought to be enforced under this Act attaches.

Any garage keeper acquiring a lien under the provisions of this Act, upon any motor vehicle, parts or accessories thereof, may replevin the same in any court of competent jurisdiction within the State of Illinois, for the purpose of enforcing such lien and thereby seize and secure the possession of said motor vehicle, parts or accessories thereof, wherever the same may be found within the jurisdiction of the court issuing such writ, provided that said motor vehicle, parts or accessories have not been sold to a bona fide purchaser, and when he shall have so obtained the possession thereof he may hold the same for the enforcement of said lien in the manner as in this Act hereinafter provided. Such action shall be instituted within three months after the said lien attaches to said motor vehicle, parts or accessories thereof.

Garage keepers acquiring a lien under this Act may enforce said lien by a sale of said property when possession of same is lawfully secured on giving the owner thereof, if he and his residence be known, to the garage keeper having such lien, ten (10) days notice in writing of the time and place of such sale, and if said owner or his place of residence be unknown to the person having such lien, then upon his filing his affidavit to that effect with the clerk of the county court in the county where said property is situated; notice of said sale may be given by publishing the same once in each week for three (3) successive weeks in some newspaper of general circulation published in said county, and out of the proceeds of said sale, the amount of said lien and costs shall be paid and the surplus, if any, shall be paid to the owner of said property. The provisions of this Act shall apply to all garage keepers, whether persons or corporations.

Wherever in this Act is used the term "garage keeper," it shall be construed to include all persons who for hire or reward publicly offer to store, maintain, keep or repair automobiles and other motor-propelled vehicles and to furnish accessories and supplies for automobiles or other motor-propelled vehicles for the transportation of persons or merchandise upon and over the public streets and highways; provided, that in municipalities wherein are in force any laws or ordinances relative to the regulations and licensing of garages, no person shall be entitled to avail himself of the provision of this Act unless he shall, during the period of the whole time covered by his claim for lien, have been duly licensed and shall have fully complied with all laws and ordinances relative to the licensing of garages.

Can Replevin Car

Under this law you would have the right to replevin a car if you furnished materials or supplies or repaired it since June 21, 1917. If you want to have your customers sign a contract you might use the following short form:

August 1, 1917.

Standard Garage, New York, N. Y:

You are authorized to store my Mercury touring car bearing New York license 998-1917 at the rate of $20 per month beginning August 1, 1917, and from month to month thereafter, and to repair the same, furnish gasoline, accessories, etc., as per my orders given from time to time. It is understood that you are to have a lien for your charges which shall not be lost by reason of the car being removed from your place; that you shall not be responsible for loss or damage sustained by reason of fire while the property is on your premises, nor shall you be responsible for theft of personal property contained in the car unless the same is checked at your office.

Moratorium Not Retroactive

Editor Motor World: We are always interested in the law and will be glad to have you advise us, either by letter or through your columns, regarding the new law just enacted by Congress, known as the Moratorium Bill. The main point that we desire clarified is: Is this law retroactive?—Howze Motor Co., Demopolis, Ala.

Answer—The Soldiers' and Sailors' Civil Rights Act which you mention provides that the period of military service as used therein shall include the time between the following dates: For persons in active service at the date of the approval of this act it shall begin with the date of approval of this act; for persons entering active service after the date of this act, with the date of entering active service. It shall terminate with the date of discharge from active service or death while in active service, but in no case later than the date when this act ceases to be in force. According to the above provisions this law is not retroactive.

It applies to those soldiers and sailors whose normal ability to meet their obligations has been materially affected by their militray service. It provides briefly that:

Creditors cannot obtain judgment against soldiers and sailors because they are absent from home.

The statute of limitations is suspended as regards suits by soldiers and sailors, no matter how long they are away in the service of the country.

The homes of soldiers and sailors cannot be levied upon to satisfy judgments entered before their departure.

Mortgages on the business or stock in trade of soldiers and sailors cannot be foreclosed.

Dispossess proceedings cannot be brought against the dependents of soldiers and sailors if the rent is not paid while they are away in the service.

If soldiers and sailors are purchasing homes on the instalment plan, mortgages cannot be foreclosed if instalment payments are unpaid while they are away.

Property belonging to soldiers and sailors cannot be sold for non-payment of taxes.

Insurance policies cannot be canceled because of non-payment of premium.

Iowa, Maine, Maryland, Massachusetts, Oregon and Wisconsin passed similar laws last year.

About forty states have provisions in their laws that officers and soldiers of the National Guard shall not be arrested on civil process while going to, remaining at or returning from a place where they are ordered to attend for military duty.

In addition the States of Idaho, Michigan, Minnesota and Pennsylvania have laws providing that no civil process shall be issued against persons mustered into the service of the state or of the Union.

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How to Lay Out a Building—3

THIS is the third of a series of articles which take up in detail the layout and arrangement of buildings for the dealer, garage and repair-shop.—Editor.

By Harold F. Blanchard



Plan No. 2

SPECIFICATIONS: Plot 50 x 150; showroom for three cars; small accessory store; private and general office; toilets; accessory store and stockroom; garage for fifteen cars; shop for five cars; elevator; shop lavatory; specialty room, and space for three machine tools and tool cupboard.

THERE is no particular reason for selecting a length of 150 ft. any more than for Plan No. 1 except that this layout is more commodious than the first one in every respect and therefore has, proportionally, a larger garage space.

This and the fact that the showroom and shop are deeper account for the difference in length. The plan may be used on a 50 x 100-ft. lot, but the garage space will be decidedly limited. The showroom holds three cars and store and office also are larger than in Plan No. 1.

The accessory store has been located at the back of the showroom. This position is not as good as the previous one inasmuch as the two departments are not as well separated. The store is not as distinct a unit.

An accessory display window has been provided at the front of the store in the same position as in Plan No. 1.

Double doors are used at the front of the showroom in order to allow a car to be driven in. This is the only car entrance in the room. To provide a car entrance from garage to showroom would entail the waste of space taken up by a driveway.

The only objection to not having a rear entrance to the showroom is that a car in the garage must be driven onto the street before it can be placed in the showroom.

On a rainy day this would mean that the car would have to be cleaned in the showroom, and in snowy weather it might be difficult or impossible to place the car because of high drifts.

All in all, however, these objections ordinarily do not compensate for the space that would be taken up by the driveway between garage and showroom.

A private office is included in the layout as well as a fairly large general office. There are toilets for men and women. Stock is stored on a mezzanine balcony reached by a short, steep staircase the same as in Plan No. 1, Fig. 3.

The shop has a lavatory and locker room, tool cupboard, space for three small machine tools which ordinarily would be drill press, arbor press and emery wheel, and an extra room which might be used for vulcanizing, electrical work, welding, etc.

If the building is two or more stories, the elevator position selected is about as good as any, although with this plan

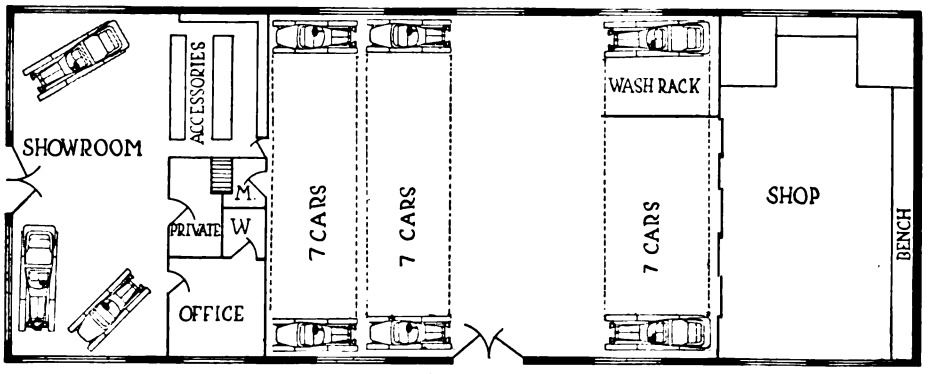


Fig. 11

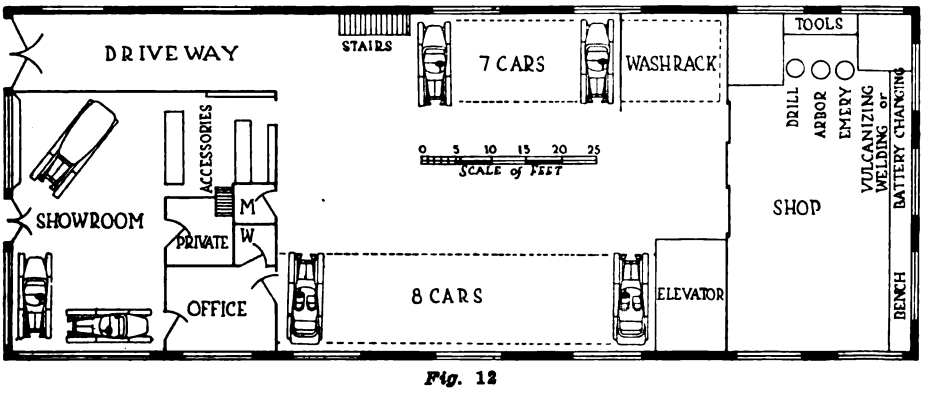


Fig. 12

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any place along either wall will do about as well.

For the sake of better light and also to keep the shop as far away from trespassers as possible, it is best located on the top floor.

In this case the layout would be altered as shown in Figs. 1 and 2, the shop remaining at the back, or, for that matter, it might be placed at the front.

A corner location, Fig. 12, affords a larger showroom and permits twenty-one cars to be stored in the garage instead of fifteen. No accessory display window is shown in this plan. The showroom door is directly in the center, and both sides are used for car display.

The shop is identical with Fig. 11, and the elevator has been omitted, although its location might be the same as in Fig. 11. Obviously, also, shop and showroom units are interchangeable with those in Plan No. 1.

For the sake of good light the office is placed on the same side as the side street.

If the plot were 15 or 20 ft. shorter and showroom and shop unit remained the same, only two rows of cars could be accommodated, and if the property were 15 to 25 ft. longer four rows of cars could be taken care of with two aisles and two entrances instead of one. These remarks take care of the principal variations not discussed later.

(To be continued)

Laying Out a 115 x 120 Ft. Plot for Efficiency

Editor Motor World: Please submit, if possible, plans for garage, one story, on lot 115 x 120 ft., to set back 20 ft. from curb, facing either way, which would give most room for storage, to include combination office and display room and repair shop to hold 6 cars. On the 115 ft. side of the lot we could get more room, or less, whichever would work out to the best advantage.—Reber & Ruhe, Allentown, Pa.

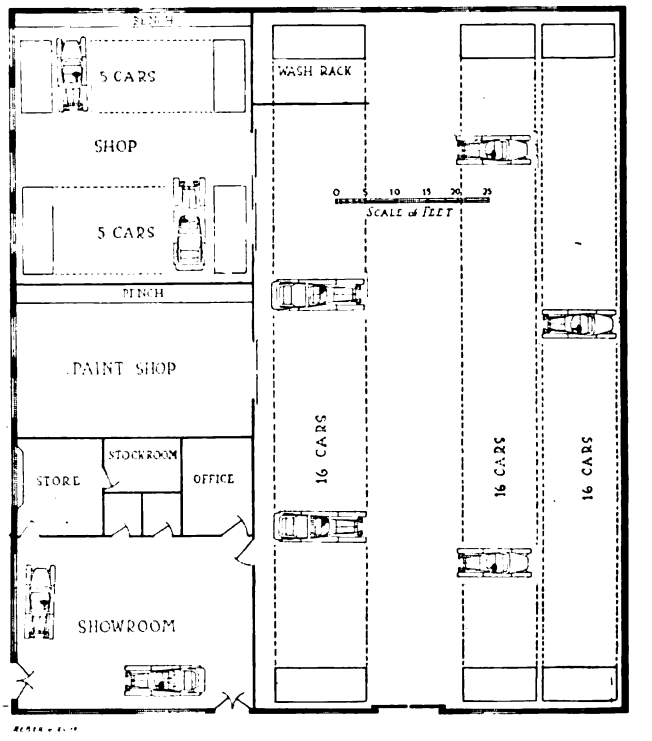
Answer—If we understood your letter correctly, only 100 ft. of the depth and not 120 ft. is available, so therefore we have made the building 115 x 100 ft.

Instead of trying to decide which street the showroom should face on, we have placed it on the corner so that it faces on both streets.

The accessory store may or may not have a partition between it and the showroom, just as you like. If you decide to do without the partition, we would suggest that you place a showcase along the line which separates the two rooms, so as to make them as distinct as possible.

The garage is designed for two rows of cars on one side. You will find that this will save space and it will cause no trouble if you will take care to put the cars which come in early and go out late in the back row, the ones which come in late and go out early in the front row and the doubtful ones in single row across the aisle.

It is impossible for us to estimate the cost without actually visiting your town and finding out what things cost there. Choose brick or hollow tile, whichever happens to be cheaper in your vicinity. Both are very good building materials.



Texas Banning Sunday Gas

DALLAS, TEXAS, April 29—Scores of counties in Texas are enforcing what is known as the Blue Laws and are prohibiting the sale of gasoline and oils on Sunday. In a number of counties as the result and especially the larger towns of the state where such is being done, fire rates have increased. It is claimed the law is responsible for many persons buying large tanks in which to store gasoline for their Sunday consumption and that such has increased the fire risks.

Toledo Organizes for War Work

TOLEDO, April 29—Toledo businessmen and manufacturers have organized a Toledo war industries commission for the purpose of more efficiently co-operating with the government. The objects of the new organization are to help the government in getting greater production, to aid the manufacturer in getting contracts, and to provide employment for labor released through the slowing down of ordinary manufacturing. The commission will make an immediate survey of Toledo manufacturing concerns and estimate the possibilities, so that bids can be made upon war work by the commission as their representative. Factories will be classified and war work will be allotted to all large and small plants which are equipped to handle it.

Texas College to Teach Use of Tractors

DALLAS, April 29—Realizing the importance of the use of tractors, the Texas Agricultural and Mechanical College at College Station has opened a class for instruction. This was decided upon recently at a meeting of faculty members and the directors of the institution. A large number of tractor engines are to be bought for the institution and the students will be given instructions in the various lines of work. This is done because of the increased use of tractors in this part of the Southwest.

More Cash For Signal

DETROIT, April 25—At a recent meeting of the board of directors of the Signal Motor Truck Co. an executive committee of three was appointed and its chairman will be in daily attendance supervising the business of the company. It is stated that stockholders and directors have completed arrangements whereby sufficient new cash and credit has been obtained to enable the company to increase its production immediately. It is understood that lack of working capital has hindered both quantity production and the handling of government business. The offer of the Paige-Detroit Motor Car Co. to purchase the Signal company has been definitely rejected. It is stated that the Signal company has closed contracts since Jan. 1 for more trucks than were manufactured during the whole of 1917 and that with the additional financing the company has sufficient cash to produce all the trucks necessary to meet the demands of dealers.

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A Department of

BETTER MECHANICS

No. 65

Simple Electrical Testing—1

Use of the Hydrometer—Battery Charging—The Test Lamp

THIS is the first of a series of three articles on simple electrical testing. The articles have been written with a view to assisting the garageman and repairman to a better understanding of the electrical equipment of the modern car so that he can be of greater service to his customers. Save all the articles for future reference.—EDITOR.

IN winter the electrical equipment of a motor car is required to withstand a much more severe service than at any other time. This is due, first, to the fact that the engine starts harder and quickly runs down the battery; secondly, to the fact that the lights are used for longer periods; and, thirdly, because storage batteries will quickly freeze if allowed to run down.

USE OF THE HYDROMETER

In cold weather the battery solution cannot freeze if the battery is kept fully charged; the plates will not sulphate or harden, and the engine may be cranked at a speed that will facilitate easy starting. However, when discharged, the solution will freeze readily, the plates will harden, and the battery capacity will be reduced. The system may fail entirely and place the car out of commission.

Dim lights or failure to crank the engine easily indicates a discharged battery, though failure to crank may be caused by the stiffened or hardened oil. It is therefore advisable to release the clutch so that the gears in the gearbox do not have to be turned when cranking the engine on a cold morning (on cars where this is possible).

The density or specific gravity of the electrolyte is the best indication of the battery condition, and is determined by means of a hydrometer syringe.

Periodic readings should be taken of all the batteries, and the reading should be between 1.150 and 1.275. If the readings go below 1.150 the battery is so far discharged that it will not properly crank the engine, although the lights may burn bright enough to indicate good battery condition.

The following points should be observed in using the hydrometer:

1—The electrolyte taken from one cell should be replaced in that cell. Otherwise too much acid may be placed in one cell and not enough in another.

2—The formation of air bubbles in the cell should be prevented, as these occupy space and render correct gaging of the electrolyte difficult.

3—If the solution in any one cell is less than ¼ in. above the top of the

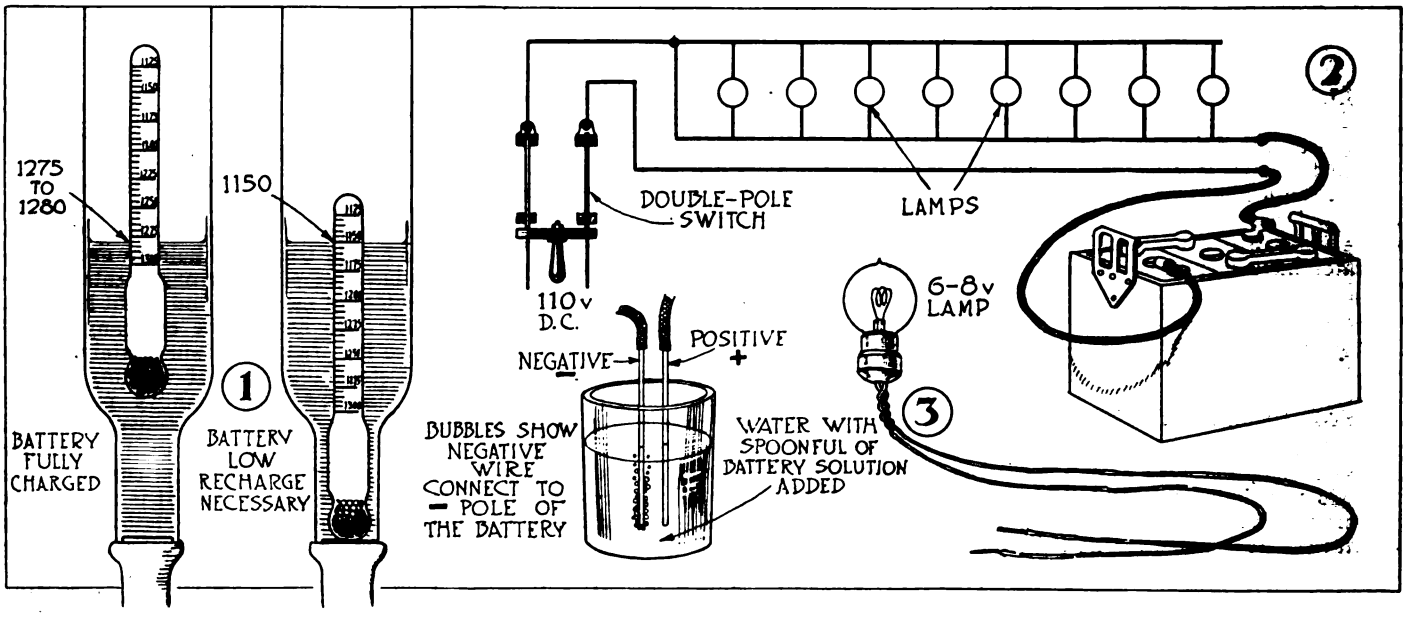


Fig. 1—Showing the readings of the hydrometer when the battery is fully charged and discharged. Fig. 2—How a bank of lamp resistances can be used to charge batteries from 110 volt d.c. line. Before connecting up, the positive and negative wires should be determined by the method shown above. Fig. 3—A handy testing outfit consists of a 6-8 volt lamp connected to 8 ft. of flexible wire

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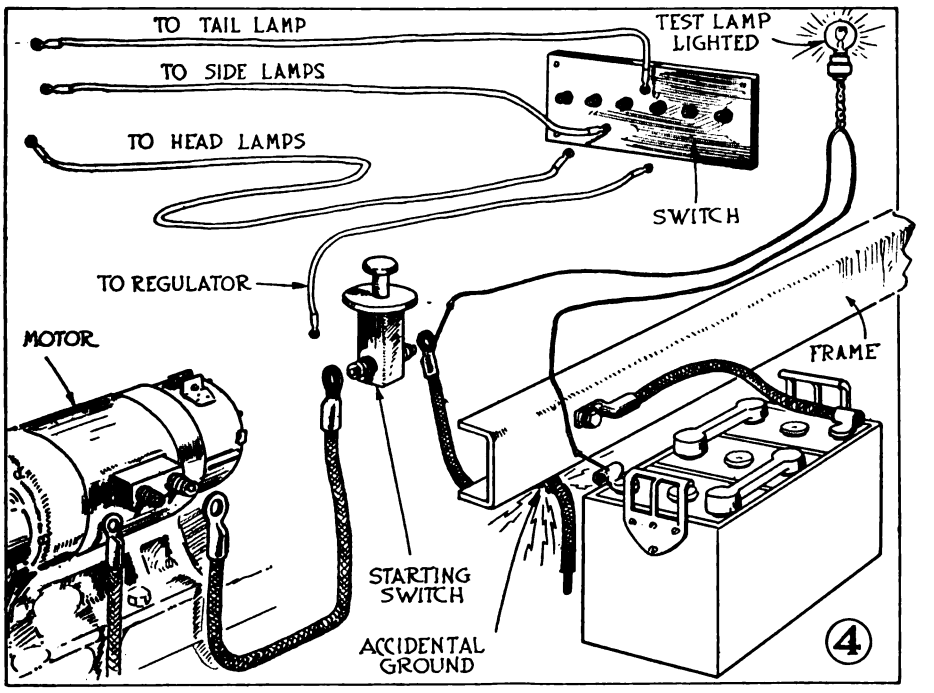


Fig. 4—A grounded connection may be determined by removing both ends of all wires in the system except the battery ground wire, connecting the test lamp to the other pole of the battery and touching the ends of the wires in succession. The lamp will burn when the defective wire is touched. All insulated terminals on the starting switch, main switch block, generator or motor should also be tested in a similar manner. After repairs, the wires should be replaced

plates distilled water should be added until the plates are covered at least ½ in.

The following is a table showing the freezing point of the electrolyte at various specific gravities, as well as the amount of charge indicated at that time:

Specific Gravity	Feezing Point	Condition of Charge
1.275 to 1.285	Cannot freeze	
1.250	50° below zero	Fully charged
1.200	20° below zero	¼ discharged
1.160	Zero	½ discharged
1.120	20° to 30° above zero	¾ discharged
		Discharged

If a car is stored for any length of time the batteries should be first fully charged and given a boosting charge each month during the idle period. This may be done by running the engine for about six hours; but it can best be accomplished by removing the battery and charging it by the regular charging equipment.

Simple Battery Charging Outfit

In those places where direct current is available the common electric lamp may be used as resistance in gaging the current to a point where it may be used for battery charging. Ordinarily a battery should be charged on a 4-amp. current, and enough lights must be lighted to permit that amount of current to flow. A diagrammatic sketch of such a lamp resistance is shown in Fig. 2. These lamps may be conveniently mounted upon a panel and placed at the rear of the charging bench. The following table shows the number of lamps that should be lighted at one time on 110-volt direct current:

Type of Lamp	Number Necessary
60 Watt, Mazda or Tungsten	7
40 Watt, Mazda or Tungsten	10
25 Watt, Mazda or Tungsten	16
16 cp. carbon	8

In using this outfit for the first time it is necessary to determine which is the positive and which is the negative terminal of the charging wires. This may be done by placing the two ends of the terminals in a glass of water about ¼ in. apart and then turning on the current. A spoonful of battery solution is then added to the water. Small bubbles will instantly collect on one of the wires in the solution. This wire is the negative terminal of the circuit, and should be connected to the negative pole of the battery. The other wire is of course attached to the positive pole of the battery.

With a charging outfit of this nature about thirty hours are required completely to recharge the battery, and this condition may be determined by a hydrometer test. Before starting the charge each cell should be practically filled with distilled water. However, in all places direct current is not available, and in such instances a rectifier should be purchased. These may be procured from any electrical manufacturer or automobile supply house. The requirements of the service station should be determined, so that the rectifier will have the necessary capacity. The repairman should advise the supply house or rectifier manufacturer as to the type of power available in his establishment, the voltage, cycle, and the number and type of batteries he desires to charge.

Test Lamps

There are two types of test lamps in common use in the repairshops, each of which is simple to construct and extremely valuable for certain tests.

Individual Test Lamp

For determining shorts, grounds and open circuits on the car and using the storage battery as a source of current, the test lamp shown in Fig. 3 is entirely satisfactory. It comprises an 8-volt lamp and lamp socket, to which is attached 8 to 10 ft. of lamp cord. The free ends of this cord should be soldered in order to prevent fraying and to give a harder medium of contact.

Locating Grounds

When the storage battery becomes run down the lights are consistently dim, and subsequent recharging does not remedy the battery condition, a grounded short circuit is to be expected. In this condition the starting motor will not crank the engine properly, fuses will constantly blow out, and the battery will run down.

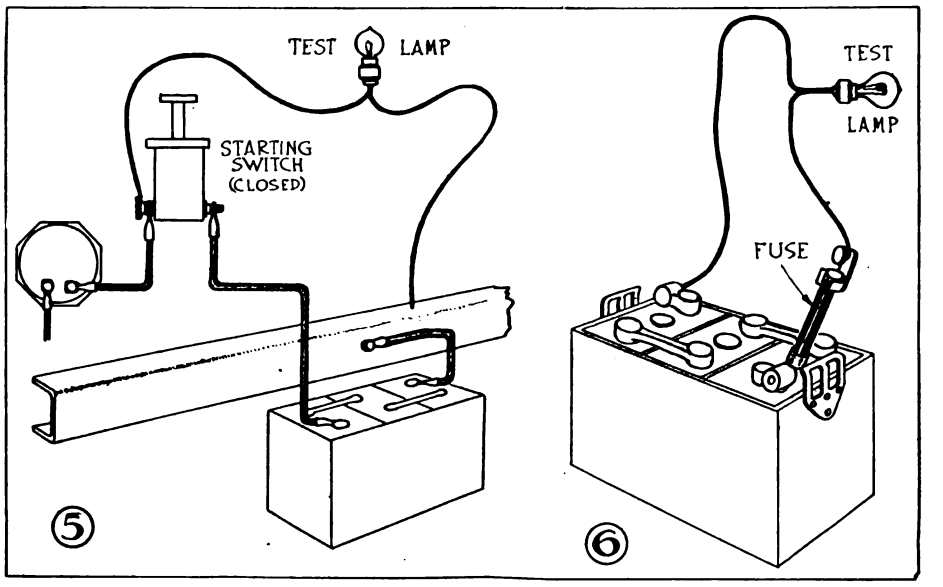


Fig. 5—Left—A dead lamp indicates an open circuit, if one side is grounded on the frame and the other placed on a bare wire through which current should be flowing. Fig. 6—Right—A fuse may be tested by placing one end of it on a battery terminal, connecting one side of the test lamp to the other side, and completing the circuit to the remaining terminal of the battery with the other test lamp wire. If the lamp lights the fuse is all right; if not, it is blown out

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Examination of the system will usually show where the ground is taking place. Ordinarily this is a point where the wire passes over a sharp edge of the frame or else is budged in between an insulating binding post and some part of the frame. Oftentimes the short-circuited wire will become warm.

The test lamp may be used to show exactly which one of the wires in the system is grounded. The method is shown in Fig. 4 and is as follows:

1—Both ends of all the wires in the system are freed from their terminal connections and placed so that they cannot touch any metal on the car. There is one exception to this statement, and that is that the wire connecting one terminal of the battery with the frame is not removed.

2—One terminal of the test lamp wire is attached to the free pole of the storage battery.

3—The other terminal of the test lamp is touched in turn to the free ends of every other wire in the system in succession.

4—When the grounded or short-circuited wire is touched the test lamp will light, and that wire should either be replaced or repaired with insulating tape.

5—All wires should be replaced to the original point of connection.

Open Circuits

An open circuit is often indicated by failure of some part of the system to operate, and may be caused by poor connections at the terminals or by a break in the wire. Faulty switches, regulators, blown fuses, etc., may likewise cause an open circuit. A test lamp may be used to determine the position of the difficulty. The following is the method (see Fig. 5):

1—Connect one end of the test lamp wire to the frame of the engine so that it is grounded.

2—See that all contacts are tight, that the fuses are in place and the lighting switches closed.

3—Starting at the battery terminal, touch each terminal in the system in turn, following it to its ultimate source.

4—The test lamp will refuse to light when it has passed the point of open circuit.

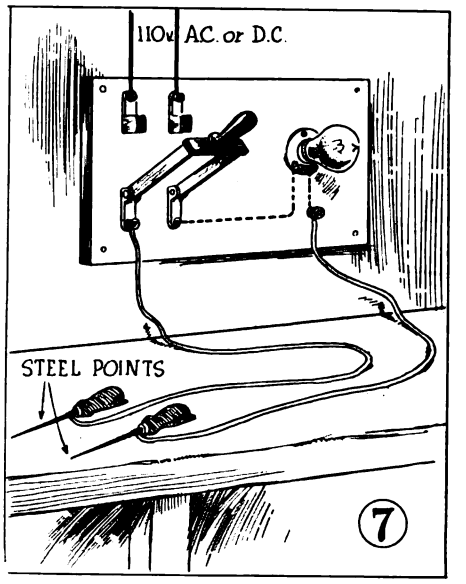


Fig. 7—A testing board which can be installed over the bench consists of a double-pole switch and test lamp with about 10 ft. of flexible wire to the ends of which are attached a pair of steel points provided with wooden handles

Testing Fuses

It is often difficult to determine exactly whether a fuse is blown or not, and when an open circuit is experienced it is advisable to test the fuse to see that it is in good condition. This may be done by removing the fuse to be tested and:

1—Placing one end of the fuse on a battery terminal,

2—Place one end of the test lamp wire on the other end of the fuse,

3—Place the other end of the test lamp wire on the opposite battery terminal.

If the test lamp lights the fuse is in good condition and may be replaced, but if not, a new fuse should be procured.

It should always be understood that a fuse does not ordinarily blow out unless it has received an oversupply of current, and the cause of this should be determined before a new fuse is placed or the only result will be a continued blowing. This may be caused by a short circuit, and the test for short circuits should be gone through.

A point in testing circuits should be emphasized, and that is always to work from the battery toward the end of the system on one circuit at a time and to follow the wiring diagram as supplied by the car manufacturer.

Separately Excited Test Lamps

In repairshop work a most convenient testing outfit comprises a test lamp mounted on a 110-volt lighting circuit in the manner shown in Fig. 7. The test lamp is mounted either at the rear of the bench or placed on a portable panel so that it may be carried to a point on the machine where the mechanic can conveniently watch it. To these lamps are connected two lamp cords, each from 10 to 12 ft., in length and terminating in sharp steel points that are attached to wooden awl handles. These may conveniently be carried to any part of the car, and when placed together or connected by an intervening wire in the system will complete the circuit and cause the lamp to light.

Testing Grounds

Any wire may be tested for a ground circuit by means of the outfit by:

1—Disconnecting both ends of the wire and freeing it from contact with any metal point.

2—By placing one test point on the frame of the car and the other test point on the end of the wire being tested. If the lamp lights the wire is grounded.

The same point emphasized in using the other test lamp outfit applies here—namely, that all grounds due to terminals

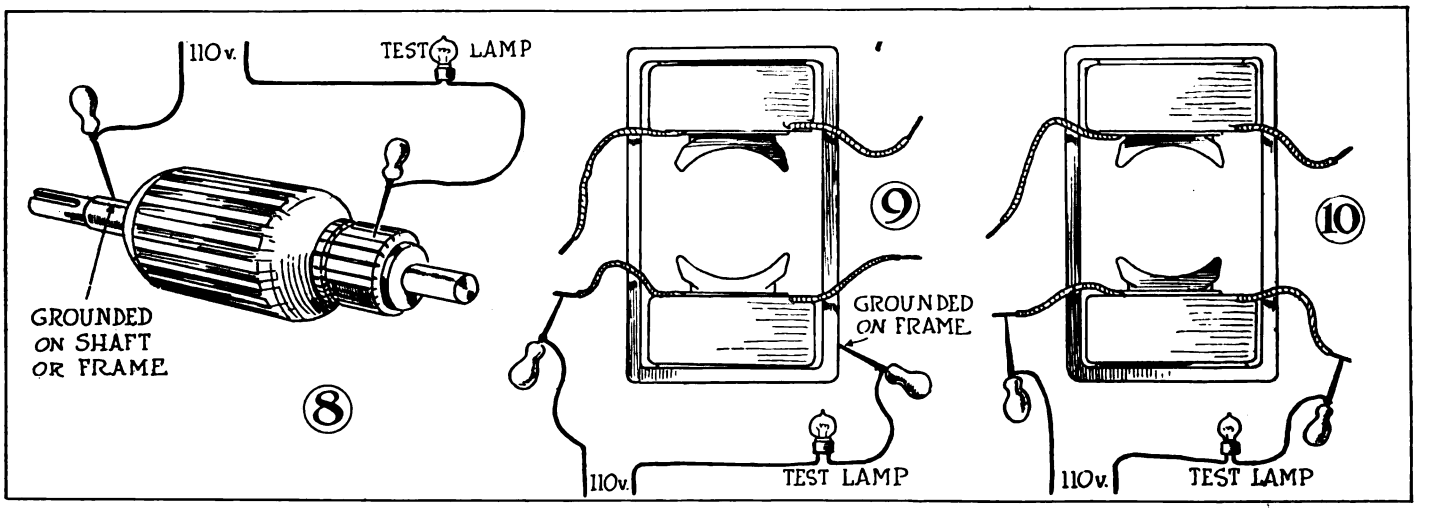


Fig. 8—Left—Commutators and armatures can be tested for grounds by removing the brushes, placing one test point on the commutator and the other on the motor frame. If the lamp lights, the commutator or the armature windings are grounded and must be repaired. To make the test it is not necessary to remove the starting motors or generator from the car. Fig. 9—Center—Field coils may be tested for grounds by removing both ends of the field windings from all connections and then placing one test point on the frame and the other on a terminal of the field coil being tested. If the lamp lights the coil is grounded. Fig. 10 Right—An open circuit in a field coil may be determined by disconnecting both ends of the coil and placing a test point on each. If the lamp does not light, the field coil circuit is broken

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must first be removed and the wires tested in sequence from their origin at the battery to their termination in the various units following the wiring diagram.

Short Circuits

Any positive and negative wires in the system normally insulated from each other may be short-circuited by contact, and this condition may be tested in the following manner:

One test point is placed on a terminal of one of the suspected wires and the terminal on the other suspected wire. If the lamp lights, a short circuit is indicated between the two and should be removed.

Broken Circuits

Broken circuits are normally indicated by some part of the electrical system refusing to operate, and should be traced from their point of origin from the battery outward. Ordinarily such breaks are caused by loose or corroded connections, and these should be examined first, though they may also be caused by a break in the wire itself. Any wire in the system may be tested by the test points as follows:

1—Place one of the test points on one end of the wire to be tested and the other on the opposite end.

2—If the lamp lights brightly the wire is in good condition; if dim, a partial break has occurred, and if not at all, the wire is broken. In either of the latter cases the wire should be either repaired or replaced. If it is to be repaired the ends should be not merely wound together but soldered and carefully taped. A noncorrosive solder should be used in order to prevent further difficulty.

Testing Armatures

Tests indicative of the condition of an armature may be made by means of separately excited test points, though careful tests require the use of a voltmeter and an ammeter, as will be later described. In Fig. 8 is illustrated the method of testing the armature coils to find out whether they are grounded. This test may be made without removing the electrical unit from the car, in the following manner:

1—Either remove the brushes entirely or insulate them from the commutator by means of cardboard strips placed between them onto the commutator.

2—Place one of the test points on the starting motor frame.

3—Place the other test point on a commutator bar.

4—If the lamp lights in any position of the point on the commutator it will indicate that a coil is grounded.

The remedy here depends on the facilities of the service station where the work is being done, but usually the armature should be removed and a new one substituted unless facilities are at hand for repairing the old one. A grounded coil is often indicated by failure to crank in a starting motor or failure to start in the generator, or a marked drop in the capacity of either to perform its natural work.

Testing Field Coils

Field coils may be tested for grounds in a similar manner, it only being first necessary to remove both ends of the field so that all normal grounds are removed and the coil is left as a separate unit. This is shown in Fig. 9, where one test point is placed on one end of the coil wire and the other on the frame of the car. If the lamp lights, a ground circuit is indicated. The remedy here likewise is to replace the coil.

Open-Circuited Field Coils

When in good condition the current should flow freely through the field coils, and if the coil is disconnected from all parts of the system, and the test points placed on the two ends of the coil as shown in Fig. 10, the lamp should light. If not, the wire in the coil is broken and the coil should be replaced.

Electrical testing by means of either of the above-described test points is a simple matter provided the mechanic follows closely the principles emphasized. Summing these up briefly they are as follows:

1—Difficulty may be caused by grounds, short circuits, or open circuits.

2—Grounds may be determined by disconnecting both ends of the suspected wires, placing the test points on one end of the wire and the other on the car frame. If the lamp lights, a ground is indicated.

3—Short circuits ordinarily occur between two wires in the system that should be normally insulated, and this condition may be determined by placing one of the test points on one end of the wire suspected and on the end of the other wire, after each is removed from its contact from a terminal or binding post. If the lamp lights the wires are short circuited.

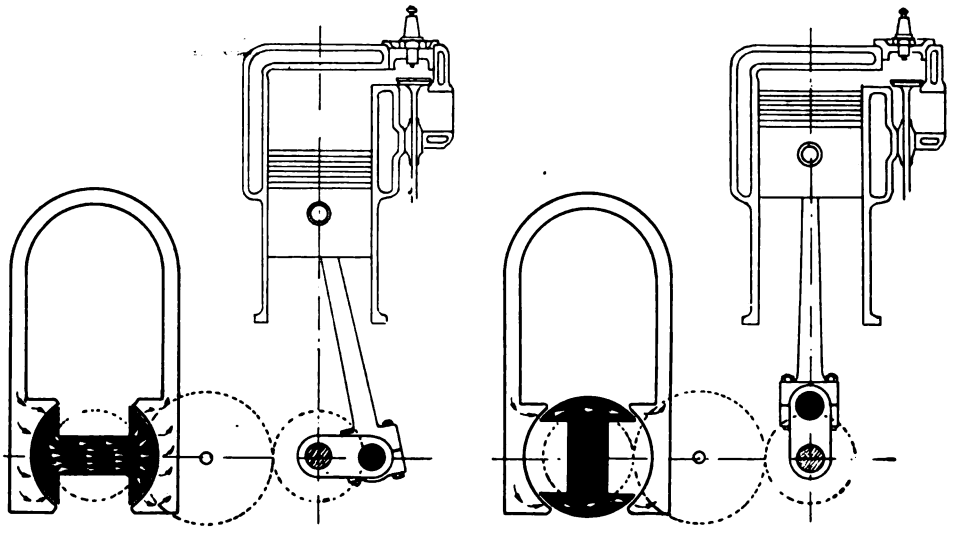
4—An open circuit denotes a break in one wire, and by simply disconnecting both ends of the suspected wire, placing one test point on one end of the wire and another test point on the other it may be tested. Failure of the test lamp to light indicates a broken circuit.

The point that only one wire should be tested at a time should be carried in mind, and these tests should be made starting with the battery and working outward toward the system following the wiring diagram. Only by this method can the mechanic be assured that all parts upon which the part being tested depends are in good condition. If the mechanic is not familiar with the wiring system of the car he should have the wiring diagram supplied by the manufacturers.

One Reason for the Weakening of Magneto Magnets

THE reason why the magnets of a magneto lose their strength is often a mystery to the garage man. This trouble is not always due to poor magnets, but may be caused by defects in the motor, such as bad valves, worn rings or any other thing that would impair the compression of one or more cylinders.

If the motor has good compression it will always stop on the quarter and not on dead center. When the engine crank is on the quarter the armature bore of the magneto extends right across from pole to pole, forming virtually a complete magnetic circuit. This tends to preserve the strength of the magnet. On the other hand, if there is poor compression in one cylinder, the engine will stop with the crank on the dead center. With the crank in the dead center position the armature core is at right angles to the center line of the pole pieces, this corresponding to the firing position of the armature, and the path for the magnetic lines from one pole piece to the other is then very poor. The result is the same as when an ordinary horseshoe magnet is allowed to lay around without its keeper—the magnets will gradually lose their strength.—Thurston W. Turner, Manager of the Willard Service Ann Arbor Battery Shop, Ann Arbor, Mich.



Left, position of magneto armature with piston of engine at mid-stroke showing free path for magnetic lines of force between poles of magnet. Right, position of magnetic armature with piston at upper dead center showing restricted path of lines of force through armature

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Repairshop Shortcuts

From Motor World Mechanics

No. 1646—WORK SUPPORTS

Supports for long work like pipe, bars, etc., are made of bar iron for attaching to work bench and bent as shown. The adjustable crotch is made from a bolt by cutting off the head, slitting with a saw and bending to a V or a U. The floor support has a pillar made of pipe, spread into anchor feet at the bottom, and concrete molded for a base, using an old bucket for a mold.—Charles H. Willey, Concord, N. H.

No. 1647—REPAIRING BROKEN MAGNETO SHAFT

Where the threaded end of a magneto shaft is broken off, the end is filed smooth, drilled and tapped for a stud. The edge of the hole goes into the half-moon keyway which is cleaned out and a key cut in the stud at the proper place so that the key will prevent the stud from turning and also hold the coupling. —John McGuickin, Stevens & Co., New York City.

No. 1648—LOUD GARAGE BELL

A loud bell for telephone or for calling employees to the office or front door is made from a discarded brake drum. It is placed so that the hammer of the old bell hits the rim of the drum which is supported on a pillar made from a short piece of small pipe and a long screw or lag screw.—William Millard, Millard Automobile Co., Medford Hillside, Mass.

No. 1649—HACK SAW FOR CLOSE PLACES

A hack saw frame to get in close places is made from a piece of ⅜ in. cold rolled steel, bent over at one end and notched, and threaded at the other to take two nuts and the holder for the back end of the blade. The nuts regulate the tension of the blade and a file handle can be made to screw on.—R. E. Brown, Auto Inn, Anderson, Ind.

No. 1650—HOLDER FOR BRAKE LINING

A holder for rolls of brake lining is made like a box with partitions to separate the different widths and kinds. Slots in the side of the box allow the ends to hang out so they can easily be seen and pulled out. A cover may be hinged to the top.—C. C. Spreen, Flint, Mich.

No. 1651—TOOL BOX FOR TIRE REPAIRING

A box mounted on four castors and with hinged lid, containing all necessary tools for tire repairing and tire changing, can be pushed out to the job, and as the two center castors are higher than the others, the box can be easily turned. Lid and side of box may have advertising matter to catch motorist's eye.—L. R. Barnett, East Side Garage, Bakersfield, Cal.

No. 1652—TOW BAR FOR FORDS

A tow bar by means of which one car may tow as many Fords as the power of the towing car will allow is made from 1½ x ½ in. iron bars and other fittings. The piece to fit over the rear axle is made of two parts, bent to fit the housing and held together with bolts. One of these pieces has an extending ear to which the towing bar is attached. The towing bar has a clevis formed on the forward end, is bent at right angles at the center and pivoted, and the rear end has a hole to fit the front axle clamp and a slot to turn the tie-rod clamp. This makes the towed car follow the touring car.—W. J. Peterson, Mills & Peterson, Akron, N. Y.

No. 1653—BENCH HOLDFAST

A bench holdfast or clamp for bulky work is made of square steel bar stock bent at right angles at the top and with holes drilled an inch apart at an angle of 45 deg. The bench plate is ¾ x 3 in. stock set flush with the top of the bench and with square holes 6 in. apart to fit the clamp. The clamp is pinned at approximately the proper height and the bolt in the top of the arm is tightened to clamp the work to the table.—Charles H. Willey, Concord, N. H.

No. 1654—TOOL RACK UNDER LATHE

A tool rack made to fit under a lathe to save steps. Ends are made of 1 in. boards and shelves of ¾ in. stuff. The pan to catch the turnings is placed on top of the rack which can be painted a flat black to match the lathe and prevent dirt from showing. Places are provided for wrenches, dogs, drills, reamers, mandrels, chucks, face plates and rests.—Forest M. Rhodes, Thompson, Conn.

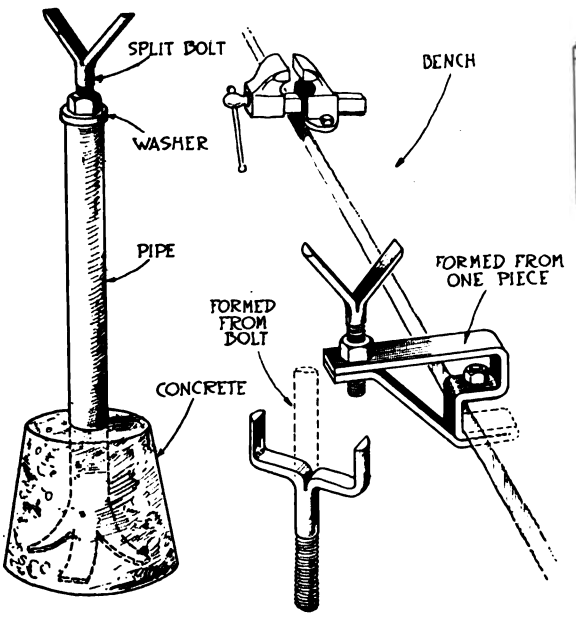
Vesta Batteries Advanced 5 Per Cent

DETROIT, April 25—The Vesta Accumulator Co. will raise its prices on all batteries 5 per cent, to take effect May 10. The reasons given are the higher costs of labor and the difficulty in keeping a labor organization, due to the draft. For these reasons the Vesta Accumulator Co. states that it finds it absolutely necessary to put the advance into effect on all shipments made on or after May 10, 1918, regardless of date that order was placed with the company.

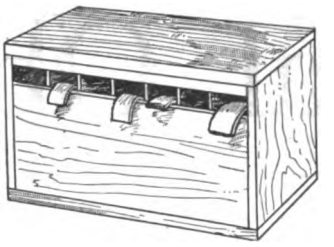
$1 a Shortcut

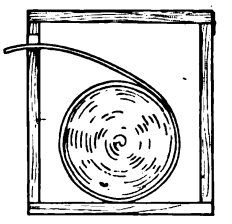
SHOP men are invited to send in the ingenious kinks they have worked out for saving time and labor in their shop. MOTOR WORLD *will pay* $1 *for each Repairshop Shortcut that is accepted for publication. The only requirements are these:* 1—*Describe the shortcut briefly but clearly, in few words.* 2—*Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job.* 3—*Write on ONE side of the paper only.* 4—*Sign your name and initials, the name of the company your are with, and the town. Write plainly. If your name is unusual, or if there might be any doubt as to the spelling of the name, print it in capital letters with your pencil.*

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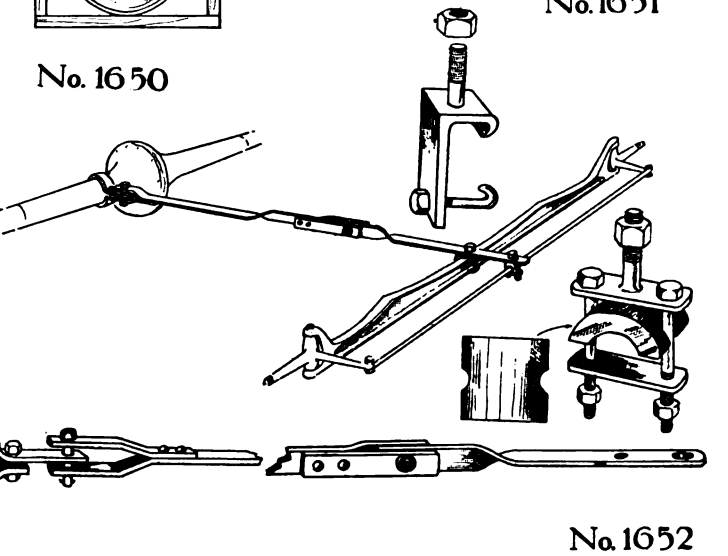




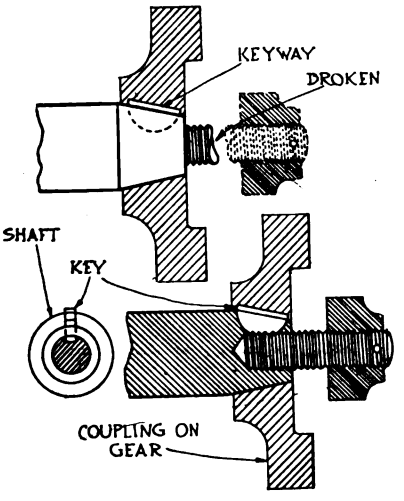
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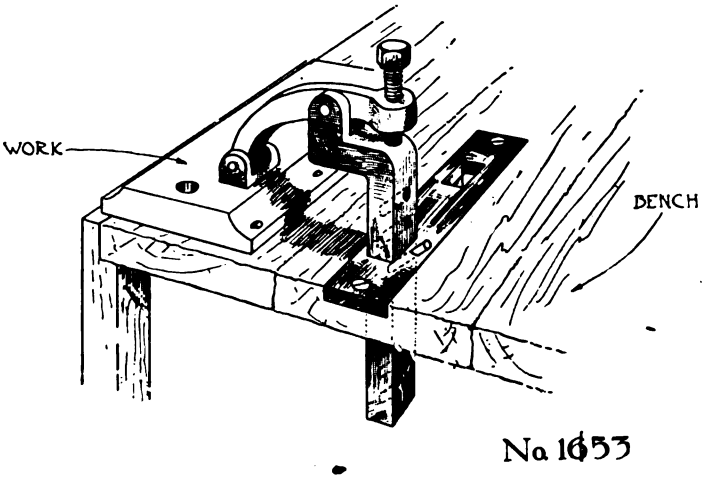
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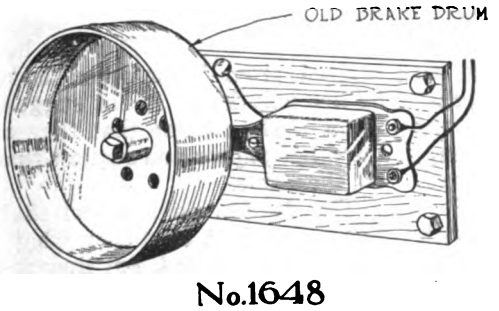
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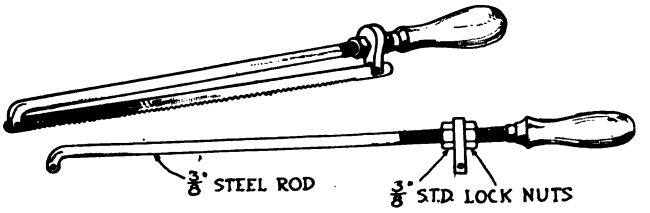
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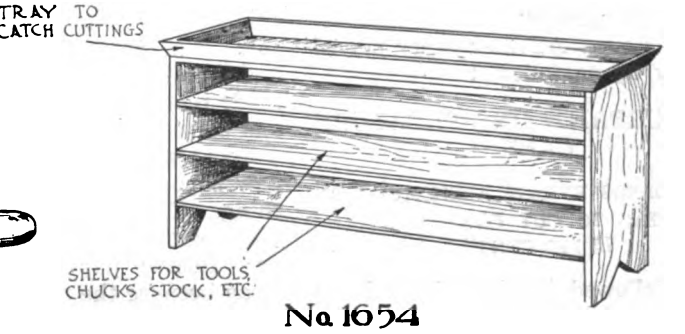
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Editorial Observation

Next Winter's Transportation

YOU have only to mention transportation under winter conditions to have yourself thoroughly understood by the business man. He went through the thing last winter and he may or he may not expect different conditions next winter.

At the recent convention in Chicago of the Chamber of Commerce of the United States it was indicated that conditions next winter will be no better than they were last winter and may be a great deal worse. R. H. Johnston, manager of the White business in New York City, studied truck conditions as they were discussed at this meeting. He sums up the situation with the statement that there will be fewer cars and locomotives built this summer than normally and that conditions next winter will be worse than they were during the past cold season.

This means that the business man should begin now and not next November to pay attention to his cold-weather transportation needs. He is not going to be able to ship all he wants to ship by rail, and transportation within 30 and 50-mile radii of cities is going to depend almost entirely upon motor trucks.

This means that the business man must begin now to plan for meeting these conditions. He must figure out what his needs will be then and secure the equipment now. Securing the equipment in advance does not mean going to a truck dealer in November and endeavoring to buy a vehicle. He may not be able to get what he wants then. There is a possibility that he can get what he wants if he investigates and takes action now and that is the thing he should do.

In this there is a bigger idea for the dealer in trucks. He should familiarize himself with conditions in his territory, study what happened last winter, prognosticate as accurately as possible what is likely to happen next winter and lay this situation before the business men of his community who were hard hit by the recent transportation disorganization. If he does that there is a prospect that he may sell trucks where he might not otherwise dispose of them.

Furthermore, for every truck which sets into the breach next winter and solves the transportation problem, a great credit will redound to the entire motor vehicle industry. The truck will demonstrate its importance in industrial affairs. It will give an upward boost to the business as a whole and every time one dealer sells a truck which stands up and does service it is going to benefit every other.

Talk With Your Newspapers

WHEN will some of the newspapers realize that the motor industry should not be the target of unintelligent attacks?

When the story of the recent "meeting" came out from Washington regarding the proposed 75 per cent curtailment, some of the papers grabbed at it like a hungry fish at an angle worm. One paper carried a motor-car advertisement on the first page, and directly underneath was the curtailment story. Another paper played the story up as follows:

"TO CURTAIL ON PLEASURE CARS

"U. S. BOARDS EXPECT AGREEMENT BY MAKERS TO CUT PRODUCT BY 75 PER CENT"

Then followed a third of a column story. Naturally, it caused some unrest among the automobile dealers. And here is a concrete example of how it works out: One big distributor has an agency near Boston. His dealer was drafted for the war, and a deal was pending to sell the business to another man. Everything was practically closed, and the distributor went out to send a telegram. On returning, the prospective buyer had a paper, reading the curtailment story. "Say, so this is why you are trying to wish this onto me?" he said. "Nothing doing. I'm through." And the deal ended, although the man could have made money at it selling cars, trucks and service.

Some of the dealers have spoken to newspaper men about this sort of thing. The fact that the story was mere rumor made it all the worse. One Boston paper threw the story away because the motor editor has the co-operation of the editors, and nothing of the sort goes in without first being submitted to him; and he realizes the harm, so such stories are banned in his paper.

When the gasoline-shortage bugaboo arrived from Washington last year, he not only killed it but suggested to some of the dealers that they call up the other papers and request that they do the same.

The dealers do not feel that they have any right to censor what newspapers should print, but they feel that articles that are not official, and which hurt business, should be investigated first. In other words, they feel that if the motor editors had a closer understanding with the news editors, and showed the latter how much harm rumor stories did, the yarns would at least be minimized instead of being played up. As a result of the oil-shortage scare a year ago, a number of prospective buyers, right after the shows, refused to order cars.

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Letters from Readers

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

Headlamp Legislation

Editor Motor World: As you undoubtedly know, the following states have passed no-glare laws through their legislatures:

*California	*Nevada
*Connecticut	New Hampshire
Delaware	New Jersey
District of Columbia	*New York
*Florida	*North Carolina
Illinois	*North Dakota
Indiana	*Ohio
*Iowa	Oregon
Kansas	South Dakota
Maine	Texas
*Maryland	*Utah
*Massachusetts	*Vermont
Michigan	*Washington
*Missouri	Wyoming
*Nebraska	

Sixteen of these states, indicated by an asterisk (*), specifically mention the 42 in. line in limiting the height at which strong headlight rays may be used. The other states require the use of dimming devices where headlights glare, or specifically prohibit glaring headlights.

There has been considerable rivalry among several of the states in an endeavor to pass the most ideal law. The laws are good, but the trouble is the lack of enforcement, and it seems to me that the automobile trade can do a real public service in bending their efforts to see that their local and state authorities enforce the laws that the people have seen fit to pass.

After examining the various laws, it seems apparent that the motorist can comply with the intent of the law in practically every state by observing the extreme provisions, which would include the use of headlights that are so constructed, treated or equipped as to prevent the beam of light rising more than 42 in. above the ground at a point 75 ft. ahead of the car, yet not so dimming the light but that it will be sufficient to make the roadway clearly visible at least 500 ft. ahead and to provide sufficient illumination to reveal objects clearly at a distance of 250 ft. ahead of the car and 10 ft. to each side of the road at a point 10 ft. ahead of the car.

Of course the object of law making to regulate the operation of automobiles on the public highways is intended to work for the benefit of all, but in reality it compels the observance of ordinary precautions that are dictated by common sense. Persons who fail to recognize these precautions make it necessary to enact such statutes.

Until the time comes when there shall be a federal or at least a uniform law for driving, speeding and lighting in every state in the Union, confusion continues for any motorist who crosses the state line. Aside from this purely political aspect of motoring, however, the ordinary law of the road, or what corresponds to the common law, is made and re-made all the time. Common practices abound among motorists, and so do uncommon practices. The latter may be expected to require even more attention than ordinary measures which merely involve obedience to the existing statutes.

It really is up to the dealers and users in each state to see that their legislature does not pass a law at such variance with the laws of other states that the manufacturers cannot readily comply with their law, and it is really up to the dealers and users in each state to see after such a law is passed that their officials enforce same.

The giving of publicity to such a feeling is, indeed, an industrial service, and the sooner the dealer, jobber, automobile club, motorist, and even pedestrians themselves insist that each and every automobile shall be equipped with a law abiding device in order that they (the motorists and pedestrians) may be protected in their respective fields the sooner the terrible accidents and deaths which have been a result of dazzling and glaring headlights will be eliminated.—E. A. Cassidy Co., L. M. Lloyd, Advertising Manager, New York.

Scarcity of Mechanics

Editor Motor World: In your April 17 issue of Motor World I notice an article written by Stanley Roberts on the scarcity of mechanics. I would like to say that if the right wages were paid there would not be a shortage of mechanics.

Most shops in Toledo are getting 90 cents and $1 per hour for labor and paying their men from $20 to $25 per week. It will be readily seen that this allows the owner one-half or better of what a man really earns. In a shop employing five men that would give the owner an income of $500 per month, besides 10 per cent to 15 per cent on all parts used.

Then, in addition to that, in some shops if a mechanic turns in to the office a labor bill of 30 to 40 hr. on a job, when the car owner comes to pay his bill he is charged 40 to 50 hr.

Of course, you say you have a big rent to pay; that no doubt is true, but in most garages the storage more than pays the rent.

If no storage is kept there is usually one or two makes of cars sold, which offsets the rent expense.

It is true there are no inducements for men to start in the repair business. It is a dirty, greasy job to make the best of it, and a man starting in usually has the dirty, greasy work to do. He can fill grease cups, grease springs, wash parts, tear differentials apart and clean them up for some mechanic to put together, and the worst of it all is they expect him to start in for $10 to $12 per week.

But when a man takes his car to the garage to have it greased he pays the same rate per hour for that work as he would for having his engine overhauled. If garage owners will pay beginners from $15 to $18 per week and mechanics from $30 to $35 per week, I do not think they will have any trouble to find men. I would like to hear from other mechanics on this subject.—C. Richard, 1522 West Bancroft Street, Toledo, Ohio.

Aluminum Pistons

Editor Motor World: We were mighty glad to see in a publication with as wide a circulation as your own some real practical information about the installation of aluminum pistons.

We asked our engineers to comment on this article. The information which I am giving you, which in some cases corrects statements made in this article, is given from the practical experience of men who have manufactured engines in which aluminum pistons were used, as well as the experience of our own men who have been recommending the proper clearances, machining practices and the like for over twenty of America's car manufacturers.

In several places you speak of .015 to .025 per inch of cylinder diameter. Isn't this an error? Didn't you mean .0015 to .0025?

In regard to the fitting of wrist pins, you state "the first step is to obtain a driving fit between the wrist pin and the piston." We do not recommend a driving fit between the wrist pin and the piston. When the piston pin is driven in the piston, the piston when heated in the motor creeps out on the wrist pin and when the piston cools it does not come back, but grips on the wrist pin. This has the effect of elongating the piston in a plane parallel to the crankshaft.

The effect of this out-of-round condition is to make the piston loose in the direction which would cause a piston slap and tight in the direction which would cause the piston to seize. By taking a piston and fitting the piston pin tight, then laying the piston on a piece of hot metal or heating the head with a blow torch and allowing to cool, we find that after this operation is re-

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peated several times the piston will be as much as 0.005 to 0.006 in. larger in diameter in the direction of the wrist pin, and likewise about the same amount smaller perpendicular to the wrist pin.

We recommend that a hole in the piston be reamed very smoothly, and that the fit be about metal to metal. In other words, the size of the hole should be almost exactly the same as the size of the piston pin. To insert the piston pin, heat the piston by immersing in hot water. The piston should then slide easily into place.

In our experience it has not been found desirable to fit connecting rod bearings more loosely with aluminum pistons. Our experience has been that they should be fitted exactly the same as though cast iron pistons were used.—B. Dyer, Advertising Manager Aluminum Castings Co., Cleveland, Ohio.

Driveaways the Thing

Editor Motor World: I have read with a great deal of interest several of your articles in the Motor World of April 17.

I note that you are laying a great deal of stress on drive-aways.

Last month the writer conducted a party of ten drivers to the Dodge and Buick plants and brought back ten cars, and last night H. J. MacMillan, one of our organization, left for Flint to drive ten Buicks to Wilmington.

We have been getting a few cars shipped, but not nearly enough for our business, and we see a great demand ahead of us for cars in our immediate territory, as the majority of dealers in Wilmington do not see that if they do not go after cars, they will not have them when the demand comes.

Trucks were slow getting started down here, but we have sold about twenty-five Stewarts and Republics, and see a great future in this end of the automobile business.

We have the most up-to-date garage in eastern North Carolina, and are entering into every line. Recently we organized a taxicab company, and in this way we are getting our money out of old cars. We have the Willard service station, and have just placed an order for an up-to-date vulcanizing plant. Later we intend to do painting and trimming.

Our garage covers 200,000 sq. ft. of floor space, and we have a front of about 200 ft.—W. D. MacMillan, Jr., Wilmington, N. C., per B. B. Cameron.

P. S.—We believe in Motor World.

Used Car Question

Editor Motor World: The charts and instructions on the used-car problem that you ran during the past summer were a veritable godsend to us, and we are wondering why you do not again run this information for the benefit of new subscribers as well as old, bringing it up-to-date and adding such new ideas as you may have gathered.

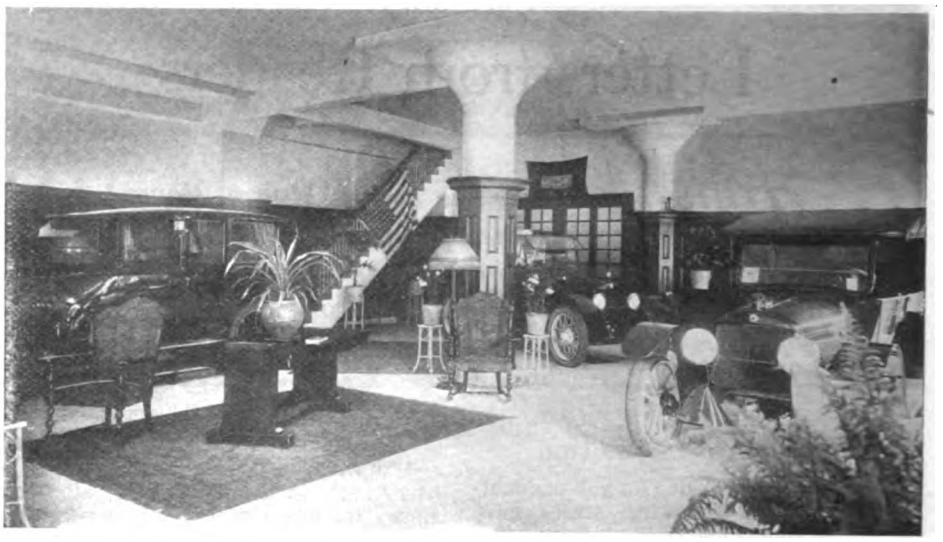
We would ask: How are you to go about figuring the present value of a particular model when the company manufacturing it have increased the price a considerable amount and still put out the same car? Should the present war tax on new models be taken into consideration? Should any extra allowance be made for the accessories the owner has put on the car, and if so, how are these to be figured in making the allowance?

We have the case of a roadster purchased last summer, and in excellent condition, which only has to be painted. List price of this car was $650 plus freight. Owner placed about $100 worth of desirable accessories, such as chains, extra tire and tube, tire cover, running-board mats, spot lamp, etc., on the car. All in fine condition. The present list of the identical car is $765, plus war tax and freight. What should we allow taking in consideration painting, which would cost us $40? We make no allowance for commissions to salesmen, and we can handle the car on re-sale for $20. The car when painted will be as good as new.

Another thing; why do you not put the weights of the various cars in your weekly specification charts? This would be of material assistance in many ways. —Cartier Auto Co., Magan E. Cartin, Ludington, Mich.

Answer—Your questions seem to come under about three heads. The first is, should you base your calculation on the present price or the old price? We believe the situation in the used-car field is that used-car values have advanced somewhat in proportion to the advance in new car prices, and that you, therefore, should figure on the present new car value, provided the car is practically the same.

For instance, if a car originally sold at $1,000 and would be worth 40 per cent less than the original price it would be $600. If this price had been advanced to $1,000 on the new car the value of the used car would still be the same percentage off, which would make the used car worth about $1,200.



The salesroom of the Standard dealer in Philadelphia is an excellent example of what can be done by way of beautifying a place of business

The second question seems to be whether you should figure on the value of the accessories that have been added to the car. This depends largely on what the accessories are.

In the case of a starter on a Ford car it would add considerably to the value, but if it is merely a collection of runningboard mats and such things as you have mentioned, we do not believe that the additional $100 value will affect the re-sale price of the used car by anything like that amount. It might affect the price to the extent of $20 or $25.

We believe you will find that, given two cars of the same kind and one with and the other without accessories, the one with the accessories will move a little quicker than the other, but it will not bring any considerable increase in price.

As to war tax and freight, it has generally been found difficult by expert used-car men to make the owner see anything except the advertised retail price of the car. The buyer cannot be made to understand that the freight and war tax are really a part of the price of the car when it was new. So all calculations have to be based upon the retail price, eliminating entirely freight, war tax and other such fees.

In the case of this particular car we believe you should go ahead and figure as in previous cases except that you use the present new car price of the car and do not pay particular attention to the accessories.

Shortcut Writers !

Please don't be uneasy if the Shortcut you contributed is not printed immediately. So many Motor World mechanics have sent Shortcuts in that we have a large supply on hand now. But don't let that stop your sending in your good ideas. Send them along.—EDITOR.

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The RETAIL NEWS

PACIFIC COAST

The Bakerfield Tire & Rubber Co. has opened quarters at Chesterfield Avenue, Bakersfield, Cal.

The Exeter Tire & Vulcanizing Co., Exeter, Cal., will move soon to new quarters.

The Central California Electric Co., Exeter, Cal., has opened a branch service station with C. W. Brady in charge.

R. W. Biddlecom and O. W. Shirts have sold their vulcanizing plant in Fresno, and have opened the Biddlecom-Shirts Tire Works at 2057 Merced Street.

O. W. Jones has organized the Victor Tire Co., Fresno, and has opened tire salesrooms at 1216 Van Ness Avenue.

Fred Pierini and E. J. Gray have bought the Totem Sincere Service, Fresno, and have moved to 2061 Merced Street.

The Pacific Kissel Kar Branch, Fresno, has moved to a new building at 1361 Eye Street.

Deron Writer has opened a repairshop at 461 Eye Street, Fresno.

P. A. Hufford has bought the Eye Street Vulcanizing Works, Fresno.

The Giffen-Wolfe Agency, Ford dealer, Fresno, has added a tire department, and specializes in the Kelly-Springfield tire.

The Superior Motor Car Co., Saxon distributer of central California, has opened a branch at Fresno.

Walter W. Cameron, Hanford Cal., has moved his Hudson & Maxwell salesrooms to the Seventh Street Garage.

Hugo Buckner has purchased his partner's interest in the Hanford Garage, Hanford, Cal., and is now sole owner.

The Bush Garage, Hanford, Cal., has been purchased by the Bush Garage Co., Inc.

The N. F. Vulcanizing Works have moved to 306 West Seventh Street, Hanford, Cal.

Spear Brothers Auto Co., Chandler and Dodge Brothers dealers at Hanford, Cal., have leased a new building at Irwin and Eighth Streets.

Phil Shellaburger has sold his interest in the Hanford Garage, Hanford, Cal., and bought an electric service and battery station at 210 West Eighth Street.

R. D. Glick has opened a repair shop at the Tomer Garage, Hanford, Cal.

H. Carlson and R. Bromark have organized the Kinsburg Battery & Vulcanizing Works, Kingsburg, Cal., and will handle Willard storage batteries and Ajax tires.

The Kingsburg Motor Sales Co., Kingsburg, Cal., Ford dealer, has erected a new building on East Front Street.

E. G. Meyers has bought the interest of H. L. Burkhart in the Valley Garage, Lemoore, Cal.

E. O. Walsh has purchased the Lemoore Garage, Lemoore, Cal.

The Samson Tire & Rubber Co. has opened offices in the Van Nuys Building, Los Angeles.

The Mission Garage has bought the Porterville Battery Works, Porterville, Cal.

A. R. Parsons, Porterville, Cal., has opened an accessory and tire store.

Henry Whaley has opened a machine shop in Tulare, Cal.

William A. Baxley has purchased the Tulare Garage, Tulare, Cal.

Lee E. Bigler has opened the Automotive Store at Visalia, Cal.

R. Morey has opened Studebaker salesrooms in Visalia, Cal.

The Visalia Battery Co., Visalia, Cal., has moved to a new building on East Main Street.

The Willimott Motor Co. has opened a service station at Coats' Garage, Visalia, Cal.

The Auto Engine & Repair Co., Seattle, has been opened at 14th and Pike Streets, by William Berry, F. W. Rust and C. B. Campbell.

Griffith Motor Car Co., Tacoma, Dodge Brothers and Chalmers distributer, in Pierce County, has moved into a new 3-story building at 728 Broadway.

Young & Wycoff, Tacoma, Ford dealers, have sold their business to M. E. Young.

Modrall & Kirkman, Tacoma, will open an accessory store at 801 Pacific Avenue, and will distribute Pennsylvania tires.

Gates Tire Agency, Tacoma, has been purchased by F. A. Pierce.

The Wever Motor Car Co., Tacoma, has moved to larger quarters at 223 South K Street.

The Interior Rubber Co., Wenatchee, Wash., has opened new quarters in the Central Building.

New Garages

Wesley's Garage.....Fresno, Cal.
Liberty Garage.....Fresno, Cal.
Ed. R. Eyman.....Parlier, Cal.
South End Garage.....Reedly, Cal.
Reliable Garage.....Selma, Cal.
Bud Nelson.....Weston, Ore.
Pancoast & Ireland.....Bellingham, Wash.
J. J. Byron.....Douglas, Wash.
Oakville Auto Co.....Oakville, Wash.
Joe Speckart (addition).....Olympia, Wash.
Brown & Weatherstone.....Omak, Wash.
Kay Burbank Co.....Seattle
Lang Motor Co.....Seattle
N. K. Tveite (addition).....Seattle
Manley-Thompson Co.....Tacoma
St. John & Titus.....Tenino, Wash.
Weaver & Son.....Wilson Creek, Wash.
A. E. Nicholls.....Wilson Creek, Wash.

NORTHWEST

Bennett & Kilger, Atlantic, Iowa, have opened salesrooms and will handle the KiselKar.

The Rehder Cadillac Co., Fort Dodge, Iowa, has opened its new building.

Carl Olbrecht, Fort Madison, has bought the Schulte Garage.

Charles Hildebrand, Greene, Iowa, has sold his garage to C. H. Williams.

Walter S. Sutton, Odebolt, Iowa, has bought an interest in Fred Dinge's Garage.

The Kagin Tire & Repair Co. has opened quarters at Nicollet Avenue, Minneapolis.

The Willys-Overland Co. has opened a used car department at 1301 Hennepin Avenue, Minneapolis.

The F. C. Armitage Garage, Kenesaw, Neb., has moved into new quarters.

Fred Haas, Madison, Neb., has bought the Overland Garage.

W. H. Snyder, North Bend, Neb., has bought the Tire Shop.

J. A. Gronna, Lakota, N. D., has sold his automobile business to E. K. Onstad, Nome, N. D.

Platte Auto Co., Huron, S. D., has moved to the Tarbell Block, Watertown, S. D.

New Garages

John Swanson (addition).....Alta, Iowa
L. C. Johnson.....Aurelia, Iowa
M. Ryan.....Corning, Iowa
Barber Garage (addition).....Glidden, Iowa
Carl Notze (addition).....Hawarden, Iowa
Skinner & Purcell.....Magnolia, Iowa
M. K. Turner.....Maquota, Iowa
Nodaway Motor Co.....Nodaway, Iowa
Shaner Brothers (addition)..Hoffman, Minn.
Hayes & Forsblade.....Minneapolis
P. W. Perkins.....Pine City, Minn.
Arthur Lane.....Rose Creek, Minn.
Thomas Foley.....Delamare, N. D.
Carl Vorlander.....Linton, N. D.
Hanson & Haugen.....Hartford, S. D.

MOUNTAIN

W. R. Carter and **George L. Denton** have opened a tire repair shop and accessory store at 36 East Fourth Street, Salt Lake City.

Blanck Rubber & Supply Co. has opened a new accessory store at 142 East Broadway, Salt Lake City.

The Hood Tire & Repair Co. has moved into new quarters at 130 East Broadway, Salt Lake City.

The Judd-Brower Co., Olympian and Liberty agent, has moved into a new salesroom at 421 South Main Street, Salt Lake City.

The Forrester Magneto Service Co., Salt Lake City, has added a battery charging and repair station.

The Wellington Auto Top Co. has moved into new quarters on Social Hall Avenue, Salt Lake City.

New Garages

M. & M. Garage.....Cascade, Ida.
P. F. Hudson.....Lingle, Wyo.
Riley Motor Co.....Sheridan, Wyo.

CANADA

The Miller Tire Co. has been opened at Winnepeg, Manitoba, and will carry a full line of accessories.

New Garage

J. Trapp & Co.....Vancouver, B. C.

SOUTH

Chester P. Wilson has opened Smith Form-A-Truck salesrooms at Louisville, Ky.

The A. F. Wolke Rubber Co. has moved their tire and service station to new quarters in Louisville, Ky.

The de Hart-Turner-Wood Motors Co. has opened salesrooms for the Elgin Six at South Third Street, Louisville, Ky.

The Blake-Pratt Co. has opened Oldsmobile salesrooms at 212 East Broadway, Louisville, Ky.

EAST

The Bowe Carriage Co., Wilmington, has opened a repairshop and overhauling business for motor vehicles.

The Pettingill-Andrews Co., Boston, has opened a new service station on Brookline Avenue.

The Guaranty Motor Co., Boston, has moved to new salesrooms on Cummington Street.

The Springfield Auto Co., Springfield, Mass., has moved into new quarters.

Southern Auto Sales Co., 212 Trenton Street, Baltimore, has opened a used car exchange.

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The Seitz Auto Co., Baltimore, will move shortly to new quarters on East North Avenue. The company has added Rainier trucks, and will continue to distribute Service trucks, Velie cars and Troy trailers. A used car department will be established in charge of George M. Wood.

The McKee Glass Co., maker of McKee lenses, has opened a Baltimore office at 21 Liberty Street.

The Westcott Motor Co., Baltimore, has purchased the Imperial Garage, North Charles Street, for a salesroom and service station.

The Auto-Electric Service Co. has opened a branch in Newark, N. J., under the management of James Garneau. The company's main office is in New York.

The Arrow Tire Co., New York, has moved to new quarters at 942 Eighth Avenue.

John B. Elsey, Dodge dealer in the Bronx, New York, will move June 1 to salesrooms in the new building at 2440 Grand Concourse and Boulevard. The building in which his salesroom will be located is to have 3 stories with provision for about 500 cars. Later when other stories are added it is planned to make room for 1500 cars. Parts of the building will be used as service stations by dealers. Elsey's space will be 50 x 175 ft.

The Eastern Motors Corp., Philadelphia, distributer of the Standard Eight, has opened new quarters at 655 Broad Street. The building is 3 stories and contains 16,000 sq. ft. of floorspace.

The Studebaker Corp. has opened a Philadelphia branch at Broad and Callowhill Streets in charge of W. S. Jewell.

The Kelly-Springfield Motor Truck Co., Springfield, Ohio, has opened a Philadelphia branch at 918 North Broad Street, under the direction of the H. P. Baker Motor Co.

New Garages

Benjamin Alexander .....Philadelphia
George W. Sheldeneck.....Philadelphia
John F. Conlin.....Philadelphia
I. Cohen .....Philadelphia
Jacob Bender .....Philadelphia
De Marley & Co.....Philadelphia
Julius Lipkin.....Philadelphia
Louis Walther Mfg. Co.....Philadelphia
William E. Calhoun.....Philadelphia
Robert W. Scott.....Philadelphia

SOUTH

H. M. Coble and W. G. Starr, Greensboro, N. C., have remodeled their livery stable into a garage and repairshop and will be styled Coble & Starr Motor Co.

The Buick Motor Sales Co. has taken occupancy of its new quarters at 212 Hale Street, Charleston, W. Va. C. F. Gilbert has been appointed general manager.

The Hudson Automobile Sales Agency and the **Biggs-Connolly Co.**, Huntington, W. Va., have been merged and will be operated under the style Biggs-Connolly Co.

New Garages

Powell & Sommers.....Clarksburg, W. Va.
Elkins Motor Sales Co.....Elkins, W. Va.
Filbert Garage .....Filbert, W. Va.

MIDDLE WEST

C. E. Cox and E. K. Demlow, Champaign, Ill., have opened a tire shop.

The Electrical Testing Co. is erecting a building in Peoria, Ill., which will be used as an electrical service station.

The Pfanschmidt-Marshall Co. has opened a battery service station at Fifth and Vermont Streets, Quincy, Ill.

The Keyt-Herrington & Price Co., Rockford, Ill., has taken over the C. B. Williams Agency for Dodge Brothers and Cadillac cars.

The HI Pressure Tire Repair Co. has been opened as a repairshop and accessories store at 220 Sycamore Street, Evansville, Ind.

Kleidsen Bros., Cadillac, Mich., Buick agents, will open an automobile and machine repairshop in connection with their garage.

E. L. Conklin, Charlotte, Mich., has purchased a half interest in the Fritz Garage, and will have charge of the office and accessories business. His partner, Joseph A. Fritz, will devote his time to the mechanical department.

Dickinson & Quirk, Chasaning, Mich., have leased the Cantwell Garage and Machine Shop at Broad and Chapman Streets.

Philip H. Lichtenberg, Detroit, has opened a salesroom and service station for Columbia trucks and trailers at 14 Benton Street.

The Monroe Garage, Detroit, has taken over the 2-story building at 215 Monroe Avenue, formerly used for White motor truck service. The company will do general automobile painting, top repairing and fender and body repairing.

The Northern Auto Co., Petoskey, Mich., has moved to new quarters in the Van Pelt block. A stock of Ford parts and accessories will be carried and a service station for Ford cars will be maintained.

John J. Kirkpatrick and **John J. Kenny**, Cleveland, have formed the Motor Sales Co. and have leased salesrooms and a service station at 8920 Euclid Avenue. They will distribute Nash cars and trucks.

C. W. Thompson has opened salesrooms at 6504 Euclid Avenue, Cleveland, for the Acason truck.

The Standard Garage, Toledo, has moved into its new home at 316 Erie Street. A supply store will be conduced in connection with the business, carrying tires, accessories and repair parts.

The Doan Motor Car Co. has taken over the retail branch of the Studebaker Corp. in Toledo.

The Throne Auto Co., Toledo, has doubled its showroom and service space by adding the adjoining rooms at 1017 Jefferson Street. The company handles the Chevrolet.

Vincent Forester, Appleton, Wis., has opened a tire, supply and accessory store.

Coughlin & Lette have bought the Fluck Motor Co., Burlington, Wis., from Adolph Fluck.

The Metropolitan Auto Co., Dodgeville, Wis., has installed new machinery and equipment.

Edward Davies, Hartford, Wis., has opened a painting, trimming and upholstery shop for motor vehicles on Rural Street.

Jerome W. Hanks, LaCrosse, Wis., has sold an interest in his business to his brother, B. Guy Hanks. The firm will be styled J. W. Hanks Auto Co.

The Northern Auto Supply Co., Wausau, Wis., has leased a building at Sixth Street and South Central Avenue, Marshfield, Wis., as a branch, supply and accessory store.

New Garages

G. H. Holmes.....Carterville, Ill.
Cox & Demlow.....Champaign, Ill.
Rhodes Garage Co.....Chicago
Ray W. Lane.....Clinton, Ill.
R. F. Beach.....Decatur, Ill.
H. S. Shurts.....Decatur, Ill.
F. Emmons .....Forest City, Ill.
Oliver Smith.....Leroy, Ill.
Henry Gallagher .....Normal, Ill.
Beatty Garage Co. .....Quincy, Ill.
Big Rapids Garage .....Big Rapids, Mich.
A. R. Davis Co.....Cleveland
Spot Garage .....Youngstown, Ohio
Union Auto Co.....Eau Claire, Wis
Charles Walli .....Merrill, Wis.

SOUTHWEST

George Harvey, Laramie, Wyo., has bought the Anderson garage from Frank O. Anderson.

L. P. Jones, Ray, Ariz., has sold the Ray Motor Co. to H. O. Arnold of San Bernardino, Cal.

M. P. Redondo, Phoenix, Ariz., has moved to new quarters at Fourth Avenue and Jefferson Street.

The Add-A-Tread Tire Co., Fort Smith, Ark, has opened a new retreading plant at Little Rock, Ark., with a capacity for retreading 75 tires per day. W. W. Robb, president of the company, has moved from Fort Smith to Little Rock.

H. B. Hubbard, Beloit, Kan., has leased the Lanborn Garage.

Johnson Bros., Canton, Kan., have bought the Santa Fe Garage.

F. W. Brett, El Dorado, Kan., has bought the vulcanizing and tire shop of A. J. Henson.

Mack Robinson, Hiawatha, Kan., has bought the garage formerly owned by the late Clarence Carter.

Drunnert & McGee, Hutchinson, Kan., will soon move into their new building.

Shinkle's Garage, Lakin, Kan., is the successor to Thorpe's Garage.

Holmes & Carter, Le Roy, Kan., have bought the J. M. Holmes Garage.

Arthur Anderson and **Everett Evans**, Lincolnville, Kan., have purchased a garage in Herington.

Bryan Blake and **Lou Bardwell**, Manhattan, Kan., have purchased the Independent Garage.

Al Fishburn, Marion, Kan., has purchased the Winkley Garage.

Lester Oldham, Pleasanton, Kan., has bought the Pleasanton Garage from Webster Leighty.

O. N. Alley, Yates Center, Kan., has bought the Stoll Garage.

J. R. Yingst, Drexel, Mo., has bought the N. Madin Garage.

Blosser & Nye, Marshall, Mo., are successors to Wm. Blosser.

J. F. White, St. James, Mo., has bought the interest of his partner, J. F. White, in the Johnson & White Garage. In the future it will be styled White's Garage.

Earl Woodrell, West Plains, Mo., has purchased the interest of his partner, Norman Proffit in the O. K. Garage.

Luther G. Ware & Co., Duncan, Okla., have bought the Wasson Steam Vulcanizing Plant.

J. T. McCreart and **M. L. Munsey**, Purcell, Okla., have bought the Woolbright Garage.

John J. Giddings, Brenham, Tex., has opened a battery repairshop.

The Corsicana Auto Paint Co., Corsicana, Tex., has opened quarters in this city.

M. F. Crowell, Crowell, Tex., has bought the interest of Albert Schooley of the Schooley & Cross Auto Co. The new firm will operate under the style Federal Auto Supply Co.

The Firestone Tire Service Co., Dallas, has moved to new quarters, 2015 Main Street.

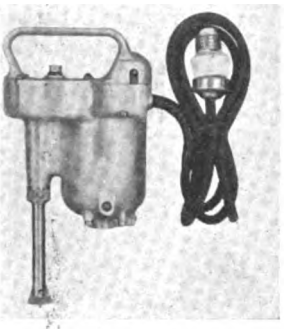
The Apperson Motor Sales Co., Dallas, has moved into its now quarters at Young and Jackson Streets.

The United States Tire Co., Dallas, has moved into a 4-story building at 1300 Jackson Street.

The Emil Grossman Mfg. Co. has opened a southwestern distributing agency at Dallas.

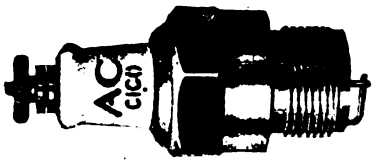
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Accessories



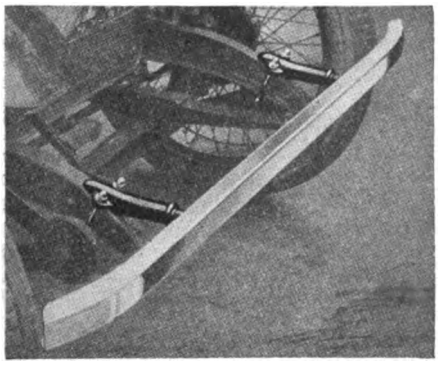
JACKSON ELECTRIC VALVE GRINDER

A motor-operated valve grinder made in three sizes, Nos. 1, 3 and 4. The No. 4 is totally inclosed, and may be operated from either direct or alternating current. Requires .1 hp., reduces time of grinding valves and is claimed to produce a more perfect seat than hand grinding. Price with attachments $40.—Kalamazoo Railway Supply Co., Kalamazoo, Mich.



A. C. CICQ AND A. C. TITAN PLUGS

Spark plugs with porcelain insulators made in all sizes and threads and in different body lengths to fit any engine. Prices 75 cents to $1.—Champion Ignition Co., Flint, Mich.



EVERGOOD BUMPERS

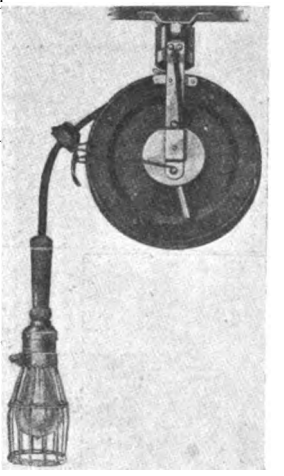
Bumpers made with channel, diamond or round bars of cold rolled steel and double spring bars. Made in a number of models to fit different cars, including the "Fitsall," to fit any car; bumpers for Cadillac, Chevrolet "490," Dodge, Ford, Franklin, Packard, Saxon, etc. Prices range from $7.50 to $14.50, depending on style of bar, finish and model. —Emil Grossman Mfg. Corp., Brooklyn, N. Y.

CARBONVOID CARBON REMOVER

A combination of volatile chemicals dissolved in the gasoline to soften and remove the carbon. Dissolved in the proportions of 5 teaspoonfuls to 25 gals. gasoline. Price $1 per can containing sufficient of the material to treat 200 gals. gasoline.—Lloyds of America, Bradley Beach, N. J.

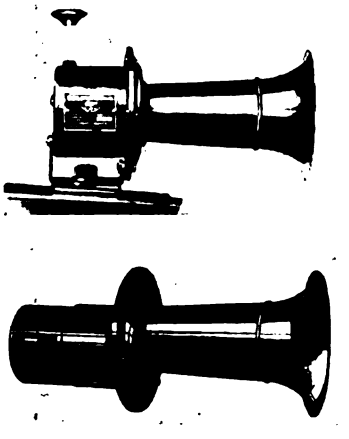
SHURNUFF RUNNINGBOARD BRACE

A runningboard and fender support for Fords, consisting of a metal arm clamped at one end to the chassis frame and bolted under the runningboard at the other, two special bolts taking the place of the regular bolts which fasten fender to runningboard. A lug fastens the arm to the frame. Price of pair of supports complete with lug, bolts, nuts and washers, in carton, $4.50.—Shurnuff Mfg. Co., St. Louis.

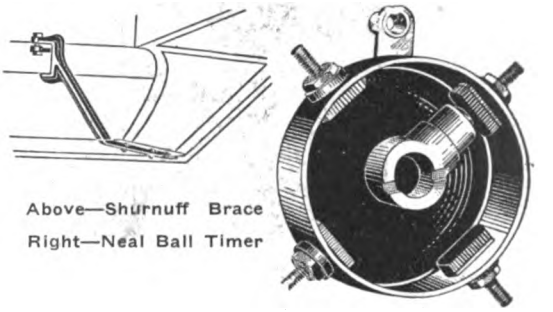


AUTOMATIC EXTENSION REEL

A reel for electric light cords in garages, 9 in. in diameter by 2 in. in width equipped with spring on same principle as shade roller and 25 ft. of lamp cord. Head is provided with swivel joint. Lamp can be extended to any distance when a slow backward motion engages with catch. A faster backward motion allows the wheel to wind up the cord. Price with socket handle and lamp cord $12.50.—Cincinnati Specialty Mfg. Co., Powers Street and Sylvan Avenue, Cincinnati.



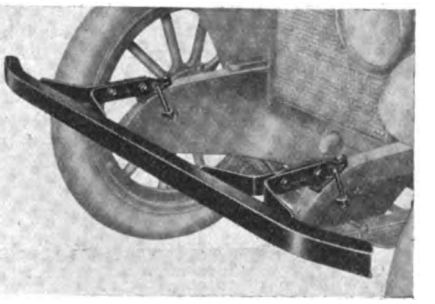
Stewart Warning Signals



Above—Shurnuff Brace
Right—Neal Ball Timer

NEAL BALL TIMER

This timer has a ball mounted in the end of the rotating member and is of such a construction that the hardened steel ball rolls over the flat hardened tool steel contact only. The ball is retained in a tool steel hardened tip and is supported by a piano steel wire spring. It is claimed that this construction develops a positive action particularly adapted to a short stroke Ford engine.—Tisch Auto Supply Co., Grand Rapids, Mich.



STEWART AUTOGUARD

A rigid bar bumper with full elliptic springs in back. Channel bar high carbon steel, springs, high carbon spring steel. Universal bracket fits almost any make of car. Prices, black enamel finish $9, nickel plated channel bar $10, black enamel for Fords $7.50, nickel plated channel bar $8.50, for Chevrolet $7.50 in black enamel, $8.50 with nickel plated channel bars. Rear autoguard and tire carrier for Fords in black enamel finish $11.50, nickel plated channel bars $12.50. Western prices from 75 cents to $1 higher.—Stewart-Warner Speedometer Corp., 1826-52 Diversey Blvd., Chicago.

STEWART WARNING SIGNAL

A warning signal with cut gears, hardened steel shaft bearings, riveted parts and continuous lubrication. Has patented attaching and supporting bracket to hold signal rigid and pointed straight ahead. Made in two styles, the hand operated signals $3.50 and the motor driven signal $6.—Stewart-Warner Speedometer Corp., 1826-52 Diversey Blvd., Chicago.

RADIATOR NEVERLEAK

A liquid radiator cement to be poured in the water of the cooling system, and which hardens on contact with the air. Small can for radiators of 4 gal. capacity and less, 50 cents. Large can for radiators of over 4 gal., 75 cents.—Buffalo Specialty Co., Buffalo.

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REFRIGO CHEST

A sanitary, dust-proof and heat resisting food chest, metal lined and white enamelled inside, with removable galvanized wire shelving. Door is paneled and closes like a watch case against a felt strip making it air and dust tight. Insulated from heat with ¼ in material. Weight 28 lb., size 29 in. high, 17 in. wide, 8 in. deep. Price $13.50.—Refrigo Auto Chest Co., Iron River, Mich.

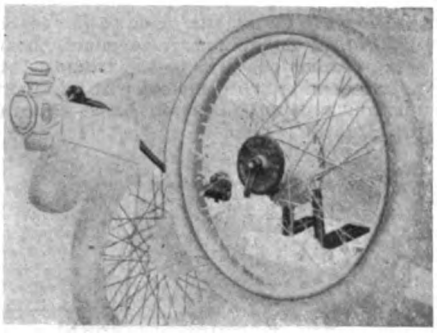
FOSTER GARAGE CREEPER

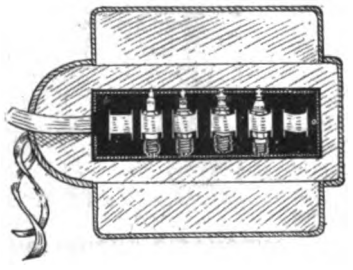
A garage creeper on which the body of the repairman is supported comfortably on galvanized link-fabric springs. His head and neck rest on a durably covered pillow. Creeper is mounted on ball bearings and can be anchored in position by a small device on the side of the creeper. Made of metal throughout, finished in black japan; price $3.—Foster Brothers Mfg. Co., Utica, N. Y.



NEW ERA WHEEL CARRIER

This carrier is designed to fill the demand for demountable and wire wheel holders on Ford cars. The carrier will take practically all the important makes of demountable and wire wheels adapted to Ford cars, and is made of steel throughout. Angle wires are used where the stresses are greatest, making the carrier sufficiently strong to carry several times the required weight. The carrier is attached to the rear spring clips, there being but four nuts to tighten. A lamp extension is designed to bring the lamp out over the rear fender and is attached to lamp connections now on the car. A hole in the hub bolt is provided for locking the wheel to the carrier. The price is $50, with 10 per cent added west of Denver.—New Era Spring & Specialty Co., Grand Rapids, Mich.



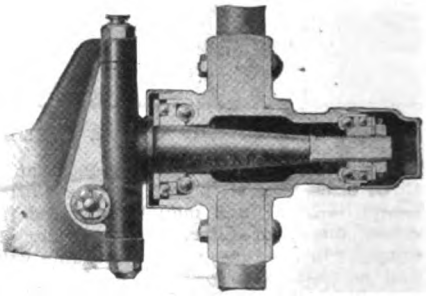


SCHEBLER CARBURETER FOR FORDS

A plain tube carbureter with no air valve and no moving parts. Pitot tube or improved type of gasoline nozzle automatically furnishes a rich mixture for acceleration and thins the mixture when the normal speed has been reached. Double choker is provided for easy starting. Price $17.—Wheeler-Schebler Carbureter Co., Indianapolis.

ROLL-RITE BALL BEARINGS

Thrust type ball bearings to be inserted in the front wheels of Fords and Chevrolet "490" cars in addition to the bearings already in the wheels. These bearings are intended to take the side thrust and so retard wear on the radial bearings. Price $10 per set for the two front wheels.—Fishbourne & Lamb, Charleston, S. C.



RIE NIE ALL-IN-ONE DRESSING

An all around dressing for finishing Pantasote, leather, mohair tops, cushions, slip covers, lamps, runningboards, fenders, radiators, trunks tire covers, etc. Prices, gloss or dull are, half-pints 40 cents, pints 65 cents, quarts $1.10, half-gallons $2.10, gallons $4.—Durkee-Atwood Co., Minneapolis.

POWERS SPARK PLUG CASE

A spark plug case for six plugs made of water-proof leatherette with binding web all around and adjustable web strap for holding any size plugs. Size open 15 by 18 in. Price 75 cents.—Powers Mfg. Co., Waterloo, Iowa.

If I Only——"

D. L. Denise, Brisco retailer in Kansas City, has a story he has told for seven years and it is still effective. It is about an old retired farmer who after saving some $60,000 through the hard work of himself and wife moved to town to enjoy it. They bought a home and settled down to rest. Three weeks later the wife died and this farmer, more than 60 years old, absolutely did not know what to do with himself or how to enjoy his money. He had come to Denise's house to try to find some consolation, to get some suggestion; and he told Denise that if he had it to do over again he would get a little more pleasure out of life as he went along. The story was especially useful in St. Joseph, Mo., where most of the community knew the old farmer; but it was made effective for every use because it was within the experience of the relator. He could tell it with conviction and feeling and every time it was told it had the same good effect.

3 IDEAS

Cutting Short the Interview

One Kansas City salesman says that he has saved fully 30 per cent of his time—consequent increase in net results—while working on the floor, by developing a method of cutting short interviews with visitors. When the visitor is not a prospect it is comparatively simple to bring the conversation to an end, while walking to the door, referring in the most casual manner to duties pending. Such visitors must be got rid of and without giving offense, and it is worth some thought and practice to develop the method.

The time-conserving salesman can dismiss the salesroom prospect by discovering a point concerning which he knows he can get further definite information and assuring the prospect eagerly that he will collect this data and call him up, meanwhile leading the visitor to the door.

Keep Figures on Owners

I have found it profitable to keep an accurate set of books that will enable me to tell on a few moment's notice how much any of my car owners have spent for repairs. I have a system of this kind which is kept complete daily, and if a man bought a car of me fifteen years ago, I can tell him in a very short time just what he has spent on that car.

Car owners frequently enter the salesroom saying that they cannot afford to keep the car because of expensive upkeep. They sometimes make this statement when they are being urged to buy a new car. When a man makes this statement to me, I immediately look up his repair record and show him what he has spent for repairs.

In nine cases out of ten the car owner will be surprised to see how little he has actually spent for repairs when he is brought face to face with the actual figures.—A. W. Buck, of the Brown-Rowan & Buck Co., Indianapolis.

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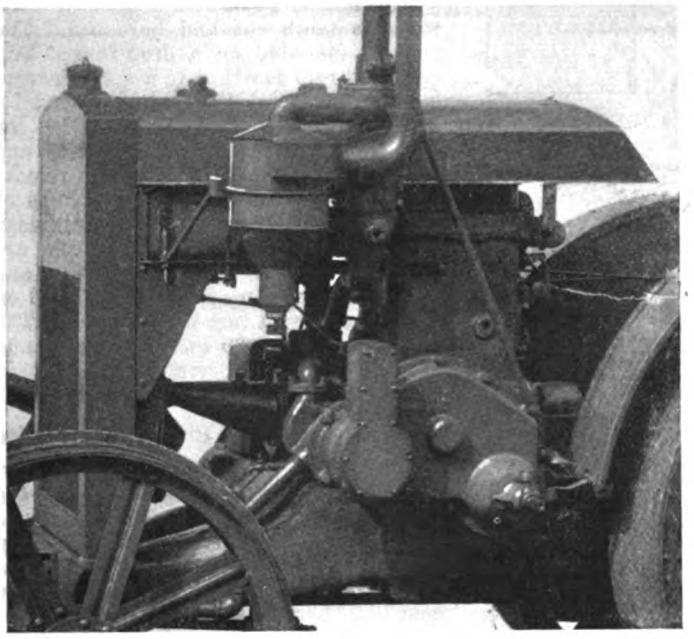
New Case 9-18 Tractor of Simpler Design

One-Piece Main Frame, Including Rear Axle, Transmission and Crankshaft Housing, Maintains Bearing Alignment and Reduces Weight — Shorter Wheelbase Gives Reduced Turning Radius

DURING the last 2 years the J. I. Case T. M. Co., Racine, Wis., has been quietly developing a new kerosene burning 2-plow tractor. This tractor, on which quantity production is now under way and on which delivery was begun last week, is not an addition to the Case line, but will replace the already well established type A 9-18. The new machine will be known as the Case type B 9-18 and will sell for $1,225, the same as the old machine, but it shows a distinct advance in design and construction over the type A. The new model has undergone actual field tests under all sorts of soil conditions and in all climates for the last 2 years.

Some of the new features which mark advance in tractor construction are the Sylphon thermostat, the improved air washer, the new frame construction, giving a shorter wheelbase and greater rigidity, and the reduced weight with increased drawbar pull.

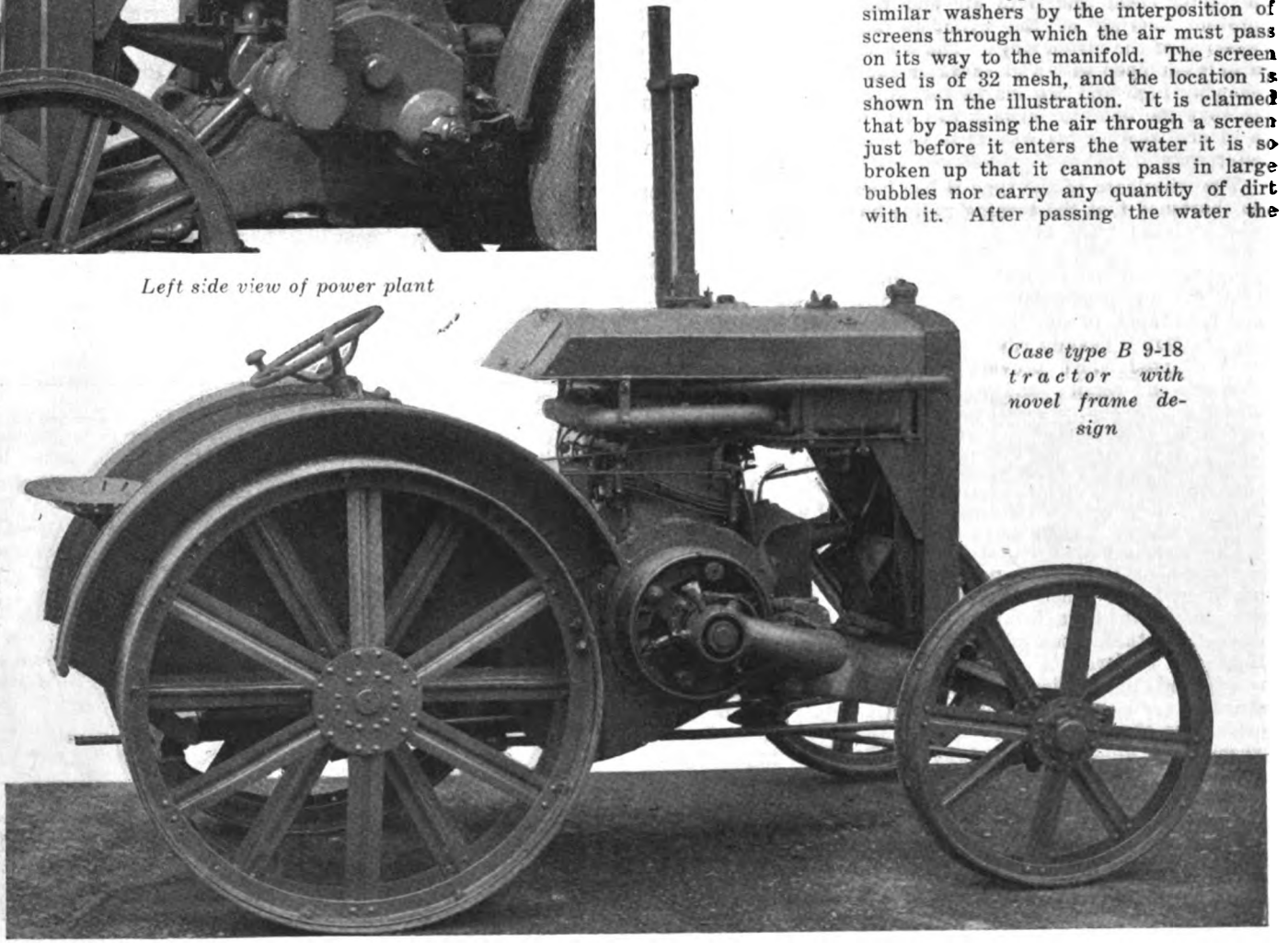
A new feature, and one possessed by no other tractor on the market, is the Sylphon thermostat, which controls the circulation of the cooling system. The manner of installation is shown in the illustration of the engine and radiator. Through the automatic operation of the Sylphon thermostat the engine cylinder is kept hot, thereby improving combustion and preventing raw kerosene from passing the pistons and diluting the oil in the crankcase. The illustration shows the internal construction and manner of operation of the thermostat. The radiator illustrated is not the type which will be used regularly. The standard radiator has a new reservoir, with cast top, bottom and sides, and can be disassembled easily and readily at any time by taking out a few bolts.



Left side view of power plant

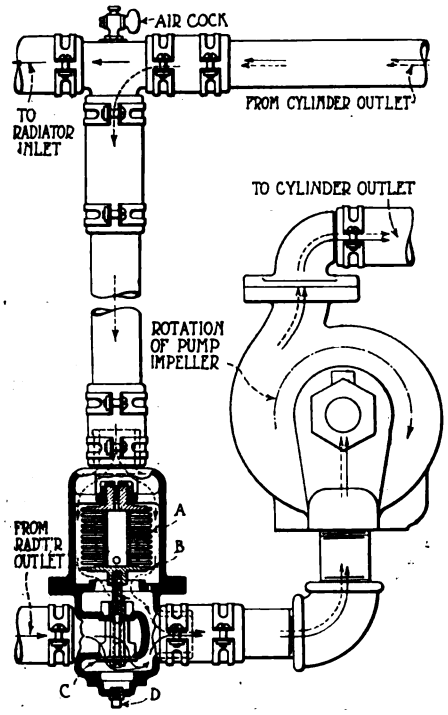
Improved Type of Air Washer

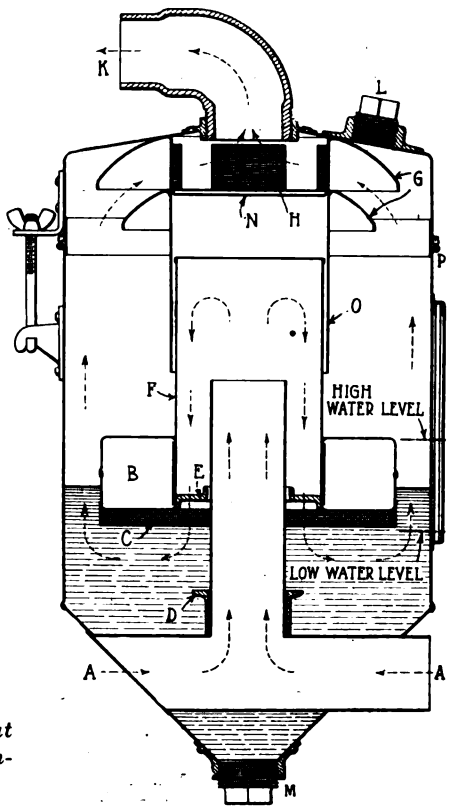
On the opposite, or right, side of the tractor is installed an improved type of air washer which is of the company's own design. This is of the water chamber and float type, but differs from other similar washers by the interposition of screens through which the air must pass on its way to the manifold. The screen used is of 32 mesh, and the location is shown in the illustration. It is claimed that by passing the air through a screen just before it enters the water it is so broken up that it cannot pass in large bubbles nor carry any quantity of dirt with it. After passing the water the



Case type B 9-18 tractor with novel frame design

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Above—Assembly of Sylphon thermostat in cooling circuit. On right—Case improved air washer

air must penetrate another screen before it enters the manifold. This is to insure perfectly clean and pure air and thus prevent scoring of the cylinders and wearing of the piston rings. The washer also is equipped with a glass water gage, showing high and low marks for water, so that the operator always can tell at a glance whether his washer is working effectively.

The wheelbase of the type B has been so shortened that the turning radius has been reduced from 14½ to 11 ft. The construction of the main frame has been simplified and the engine is so mounted that factory production is accelerated and facilitated. In simplifying the frame construction a heavily ribbed design has been adopted which provides for great strength and rigidity and which reduces vibration. A dust-proof housing for the rear axle, a dust-proof container for the bull pinion shaft and the transmission case and crankcase are all cast integral with the main frame to insure perfect lubrication at all times.

The wheels, both drive and front, are a concession to farmer preference. It has been found difficult at times in the past to convince the farmer of the real strength of the suspended type of wheel. He much preferred to have something which had the obvious appearance of strength and rigidity. To meet this preference the Case people adopted the wheel which appears on the type B. To give both the appearance and the actuality of strength the drive wheels have angle iron felloes riveted to the 9-in. tires. Ribbed flat steel spokes are double riveted to the felloe at one end and at the other are riveted four times to the hub flange. The front wheels are of similar construction.

Weight Reduced

The weight of the type B tractor has been reduced from 3750 lb. to 3310 lb., and is distributed 68 per cent on the drive wheels and 32 per cent on the front wheels. The engine speed has been increased to a normal of 1050 r.p.m. The new machine is conservatively rated at 9 hp. drawbar and 18 hp. belt, the same as was type A. However, the type B will develop 12 hp. on the drawbar, thus providing a reserve power of 33 1/3 per cent for emergency pulls. This reserve enables the type B to pull two 14-in. bottoms set to any desired depth and through any kind of soil and up any degree of grade where a team can pull a single 14-in. bottom. It is figured that with so large a margin of reserve power the tractor is not likely to be overloaded often.

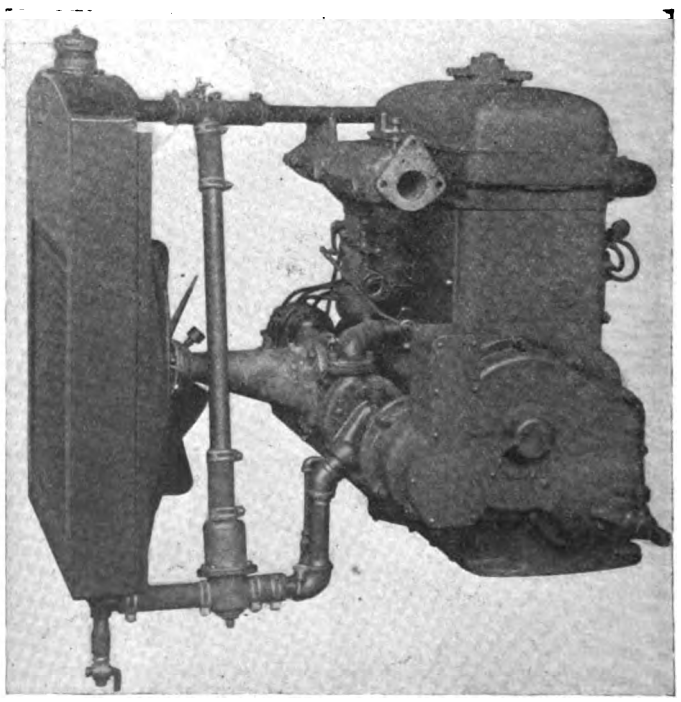
The new model is equipped with a Case four-cylinder, vertical, block engine, 3⅞ by 5 in., placed transversely on the main frame. The engine has a removable head and valves in the head, the latter being 1½ in. in diameter. Fuel is fed by gravity to a Kingston 1⅛-in. carbureter and passes through a heated manifold to the cylinders. The engine runs at a normal speed of 1050 r.p.m., the speed being controlled by a flyball governor. The belt pulley has a diameter of 14¼ in. and face of 5¼ in., and is fitted with a clutch and a brake. Ignition is by a dust-proof Kingston high-tension magneto with impulse starting coupling. The cooling system, which has a capacity of 9 gal., comprises a truck-type radiator with fan and a centrifugal pump, as well as the Sylphon thermostat. Lubrication is by the circulating splash system.

Two forward speeds and one reverse are afforded by the transmission, which has steel gears with machine-cut hardened teeth, the gears being fully inclosed and running in oil. The plowing speed is 2½ m.p.h. and the road speed 3½. Final drive is through a drop-forged and hardened spur pinion meshing with a steel master gear with 2 15/16-in. face, with its teeth cut and hardened. The gear is mounted on a drop-forged bull ring, securely fastened to a spider carrying the four steel differential pinions.

Hyatt roller bearings are fitted on the rear axle, the transmission shafts and the ball pinion shaft. There are removable bushings in the dust-proof hubs of the front wheels, and these are provided with grease cups. Driving wheels are 42-in. in diameter with 9-in. face, and 6 in. extension rims can be furnished on special order at an extra price. The front wheels are 30 in. in diameter and have a 6-in. face.

Los Angeles Republic Branch in Operation

LOS ANGELES, April 29—The new Los Angeles assembling plant of the Republic Motor Truck Co., Alma, Mich., is now in full operation, and before many months the company expects to be assembling a minimum of 250 trucks per month.



View of engine with its cooling system

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The Champion Ignition Co., Flint, has gone over the top for the Liberty Loan. Every one of its employes has subscribed. This is a picture of the Champion float in a parade in Flint recently

N. A. D. A. Supporting Anti-Theft Measure

Offers Help to Association of Secretaries of State in Pushing New Law

ST. LOUIS, April 28—The National Automobile Dealers' Association has offered its assistance to the American Society of Secretaries of State in perfecting a proposed law to stop stealing of motor cars. After the attention of the local "anti-theft committee" was called to the effort of the Secretaries' Association last week, copies of the proposed law were obtained from J. T. Botkin, Secretary of State for Kansas and chairman of the committee, and it will be carefully examined to see if it can be strengthened. The Secretaries' Association proposes to introduce this law in every State at the next session of the Assembly.

The law proposes to make transfer of motor cars exactly like that of land: That all such transfers shall be completed by recording with the proper authority to transfer and identifying the machine by engine numbers and other marks. All machines not so transferred shall be considered stolen property. Machines without engine numbers shall have them supplied by the State License Bureau and they shall be cut into the metal.

Welch Enters Kansas City Trade

KANSAS CITY, April 29—C. J. Welch has organized the Western Trailer Co., bought the plant of H. K. Bascom, body builder, and a garage adjoining, at 1508-10 Holmes Street, and has begun business as motor truck and commercial body builder and motor transportation engineer. Welch is president and general manager of the company. H. P. Wells, formerly chief engineer of the Columbian Steel Tank Co., Kansas City, has been employed as efficiency engineer on construction, and A. S. Page, for 14 years chief engineer of the American Car & Foundry Co., is consulting engineer on trailers and bodies. The company is installing new equipment and rebuilding the two-story structure, preparing for painting and finishing.

St. Louis Wants Sunday Closing

ST. LOUIS, April 28—In keeping with the war requirements the Automobile Manufacturers' and Dealers' Association has appointed H. L. Schnure and Phil H. Brockman as a committee to investigate the plan of having only four service stations open on Sunday and at night in the city. The plan is for all dealer service stations to close at night and on Sunday. The stations selected will be well established service stations.

Vesper-Buick 100 Per Cent Subscribed

ST. LOUIS, April 28—The Vesper-Buick Auto Co. was reported Friday as 100 per cent over the top for Liberty bonds, every person on the payroll being on the bond sale list.

When the bond sale campaign was organized for this Federal Reserve District there was a feeling that a mistake had been made in not organizing it by trades, so that such rivalry would be created. But when the district was the first to "go over the top" all criticism was disarmed. Motor car men are working hard in general committees and get credit along with every other industry.

Oppose Owner Licensing Bill

ST. LOUIS, April 28—An ordinance pending before the Board of Aldermen which would require that each person who drives a motor vehicle of any kind obtain a license from the city each 6 months will be opposed by all automobile owners and dealers associations. Committees already have been appointed by such organizations. A fee of $1 is required to obtain the license. The bill had advanced to second reading before the various clubs learned of it. A hearing has been granted, but the time is not announced.

Soldiers to Get Literature

ST. LOUIS, April 28—President Vesper of the National Automobile Dealers' Association has appointed W. J. Haughey of Denver to superintend the distribution of automobile literature in army camps and cantonments. The Denver association reported to the National that recently the attention of the association was called to the fact that while motorcycle and bicycle literature was at the camps in abundance, there was very little about motor cars. An investigation revealed the truth of this statement, also that about 10 per cent of the men in the army were keenly interested in motor cars, from one angle or another.

A revised set of data sheets showing the various sizes of ball retainers for cup and cone, thrust and magneto type bearings manufactured by the Bearings Co. of America, Lancaster, Penn., has been published. S. A. E. standard inch sizes of thrust ball bearings are also tabulated.



No, this is not a regular tank, though it looks a lot like one. It is a camouflaged Case tractor which was fixed up this way for a Liberty Loan parade at Dallas, Texas. Needless to add, it attracted a lot of attention, and we hope it helped sell a lot of bonds

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60,000 Californians See Tractor Exhibit

Demonstration, Staged in Davis, Shows 30 Types in Operation—Outlook Good

DAVIS, CAL., April 25—The first big tractor exhibition ever held in the West came to a successful end at the University Farm here Sunday afternoon. The show, which was originally scheduled for three days, was extended to five days, and over 60,000 farmers, ranchers, vineyardists and other food producers saw the thirty-odd types that were demonstrated.

The University Farm officials in arranging for the exhibition provided in their rules that an exhibitor be allowed to do no stunts. They were allowed only to plow up a certain acreage to a depth of 9 in. This was strictly adhered to and the ground plowed by the tractors will now be planted with experimental seed by the students at the university.

There were no competitive tests between the different types of tractors. The light weight machines of the track-laying design seem to attract more attention than the wheel type, although the latter machines came in for quite a lot of attention.

No prizes were awarded but the demonstrations were regarded so important by the state authorities that a corps of experts from the University of California under the direction of J. B. Davidson, professor of agriculture, conducted a thorough investigation, and gathered data that will be issued to the public through the State Farm in the near future.

That the outlook for the tractor industry is bright on the coast is reflected in the action of one southern California dealer in tractors, who now maintains five automobiles to convey his mechanics to serve tractor owners out in the fields.

In addition to the tractor exhibit one of the features of the Davis show was the display of motor trucks, and while interest in the tractor demonstrations was the more pronounced the power wagon exhibition drew a good crowd, and it was generally agreed from the comments dropped that the motor truck would surely follow the tractor on the farm.

$100,000 For Massachusetts Roads

BOSTON, April 27—The Committee on Roads and Bridges has reported a bill to authorize the Massachusetts Highway Commission to spend $100,000 next winter keeping the highways open for motor truck traffic. It was not done this year because the money was not available, the fees from automobiles being specifically intended by law for road maintenance. Therefore the work was neglected this year. So the commission explained this to the legislative committee and that body presented the bill. The $100,000 will be taken out of the regular registration fees and fines, which now total more than $2,000,000 each year. This will be a good start toward giving the Return Loads Bureau plans in New England a further boost as Connecticut now keeps the roads clear and this will insure complete highways without snow from New York to Boston and from Albany to Boston, as well as to Providence and Portland in other directions and other states may do the same thing.

French Race Drivers Will Not Compete

PARIS, FRANCE, April 2—Reports printed in American newspapers that Arthur Duray, Jean Chassagne, René Thomas, Albert Guyot and others will compete in speedway races are misleading. All these men are either in military service or under military law and cannot leave France. Should one of these racing drivers wish to compete in America, the Automobile Club of France would disqualify him.

Rumors that Duray, Chassagne, Guyot and Thomas have signed contracts to race in America with the Wellman-Pickens group this year are untrue. Not one of these drivers has ever received any communication or offer from the Wellman-Pickens organization.

There is also a scarcity of racing cars in Europe. The only racing Peugeot in France is Duray's Baby Peugeot of 1914, which has a cracked cylinder that cannot be replaced. There are two Fiat and two Sunbeam cars in Europe at present, but neither the Fiat nor the Sunbeam company intends to send them to America. Jack Scales, who had arranged to bring one of the Fiat cars to America last year, is now with the American Army as an expert on Fiat cars used by the American Expeditionary Forces. His team-mate, Fagnano, is under military authority at the Turin factory.

Iowa and Ohio Get Fordson Tractors

DEARBORN, MICH., April 29—Iowa and Ohio have each purchased 1000 tractors from Henry Ford & Son on the same basis as Michigan had bought its order—$750, f.o.b. Dearborn. There are now five states that have bought tractors from this company. Six thousand have been sent to Great Britain. The Canadian order of 1000 tractors has not yet been filled. The first shipments to Ohio and Iowa have left the plant a few days ago and it is expected both will be completed almost simultaneously within 30 or 40 days.

Fordson tractors in Ohio will not be handled by agents, but only by the Bryant Tractor Co., Columbus, to which application must be made.

Interstate To Market Only Trucks

MUNCIE, IND., April 26—The Interstate Motor Co. will place on the market trucks of 1 and 1½-ton capacity instead of passenger cars. The discontinuance in passenger car production is for the duration of the war only. The Interstate plant is now idle, but will soon be in operation again.

Automotive Apparatus Exhibit For Engineers

All Types Designed for War Work on View at Dayton Meeting of S. A. E.

DAYTON, OHIO, April 29—Complete plans have been perfected for the 2-day summer meeting of the S. A. E. to be held in this city Monday and Tuesday, June 17 and 18. Half of the meeting will consist of demonstrations of different types of automotive apparatus designed especially for war use. The other half of the program will be given over to popular papers dealing with new designs of automotive apparatus for the war.

There will not be the usual program of heavy technical articles, as it has been deemed more desirable to make the session of broad educational value and give the members an opportunity of examining airplane engines, different models of airplanes, etc.

The meeting will be held in Triangle Park, which consists of more than 400 acres in the outskirts of Dayton, and is in the immediate vicinity of McCook Field, the Government experimental station for aviation design, in charge of Major Howard Marmon. The society will have the exclusive use of Triangle Park for the two days, and sessions will be held in the large pavilion, which has a capacity for seating several thousand persons.

The demonstrations will include the various aviation engines, among which are all of the German types, such as Mercedes and Benz. The exhibit will also include French aviation engines, with Renault, Gnome, Garrone and Hispano-Suiza made by different countries. There will be such British engines as Rolls-Royce, Sunbeam and perhaps others. There will also be an opportunity of examining the German planes which have been captured, as well as French and English planes.

Among other exhibits of special interest will be demonstrations of machines for manufacturing airplane propellers in operation. There will be demonstrations, with explanation, of synchronizing machine guns which fire between the blades of propellers on fighting planes. There will be demonstrations of formation flying over some of the big Dayton fields, as many aviators will be there at that time.

The program includes demonstrations by many other war departments, which will be announced later, as some of the details in connection with these have not been completed.

On Monday evening, June 17, will be held the annual summer dinner at the pavilion in Triangle Park. There will be seating accommodations for approximately 1000 or more, if desired, at this dinner. Tickets at $3 each are now on sale at the New York headquarters of the S. A. E.

Hotel accommodations are being handled directly by the different hotels, of

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which Dayton has half a dozen. There is a special Dayton S. A. E. committee, which is giving its complete attention to this work, and between the hotels and one or two other places it is hoped to accommodate over 1000 members and guests. The Dayton committee is being handled by F. H. Hoover, 137 North Ludlow Street, who is acting as secretary.

Members should write direct to the Dayton hotels for reservations. This list of hotels includes Miami, Holden, Algonquin and Beckel. In addition to these it is planned to accommodate many members at the Country Club and also at St. Mary's College.

From the starting of the daily sessions at 10 o'clock until the completion at night the entire program will be carried on at Triangle Park, where luncheons will be served each day. There are ample garaging facilities at the park.

Suggest Special Engine Design for Burning Kerosene

CHICAGO, April 27—Need of special engine design to take care of the peculiar problems involved in the use of kerosene as a fuel for tractors and the possibility of a return to make and break ignition for slow-speed tractor engines were the main features brought out in the technical session of the Mid-West section, S.A.E., at the Chicago Automobile Club, last night. "Magneto ignition for Farm Tractors" was the title of the paper presented by J. G. Zimmerman, service engineer, Sumter Electrical Co. This was illustrated by special slides showing oscillographs of the building up of current voltage and power in spark gaps of different lengths and sparks produced by different ignition devices. H. T. Sward, sales engineer, Fairbanks-Morse & Co., presented a paper on "The Oil-Burning Tractor Engine," in which he described in particular the engine used in the Fair-Mor tractor. Officers were elected as follows: Chairman, G. W. Smith, assistant chief engineer, Nash Motors Co., Kenosha, Wis.; treasurer, Lon R. Smith, sales engineer, Buda Co., Harvey, Ill.; secretary, Darwin S. Hatch, editor *Motor Age*, Chicago. C. S. Whitney, past chairman, automatically becomes vice-chairman, and George L. Lavery, as past-treasurer, is the fifth member of the Executive Board.

Car Stolen by Ruse

POUGHKEEPSIE, N. Y., April 26—A man walked into the Van Benschoten Garage here yesterday morning and said he had been sent to overhaul one of the cars. After making a few minor repairs he took the car out, saying he would drive it around the block and return.

He failed to return.

The theft of the car was not noticed until its owner came to the garage to take it out.

John Van Benschoten, owner of the garage from which the car was stolen, has sent details of this case to Motor World as a warning to other garage owners, and suggests that a duplicate receipt be presented before any car may be taken out.

John D. Ryan Is Made Airplane Board Head

Coffin to Resign and Board to Be Reorganized—Divorced From Signal Corps

WASHINGTON, April 29—Howard E. Coffin will resign as chairman of the Aircraft Production Board, and a complete reorganization of airplane activities will take place.

John D. Ryan, president of the Anaconda Copper Co., and who has been prominent in Red Cross activities in France, has been slated as administrator of aircraft activities. He has agreed to accept the position. Coffin was offered a position in connection with the revamped aircraft activities, but has refused to accept it.

Under the reorganization, aircraft activities are being entirely separated from the Signal Corps. Brig.-Gen. Kenley is returning from Gen. Pershing's organization in France to assume complete charge of aviation training in this country.

Ryan is closely associated with Edward R. Stettinius, Second Assistant Secretary of War, and also with Bernard M. Baruch, chairman of the War Industries Board. While not actively connected in business organization with the Morgan interests, he has always been very friendly with that group of financiers.

President Wilson has not yet given out the Marshall airplane report, which has been expected for several weeks, and which may not be given out until the complete airplane reorganization has been effected. It is known that the President has gone through the Marshall report very carefully with Stettinius, with whom he has discussed the complete plans for the reorganization of the administration.

Major-General George O. Squier, who has been chief signal officer of the army, and head of the Signal Corps, which has controlled aviation, is displaced as head of the aviation section by General Kenley. In future General Squier will confine his activities to what is known as the administration of signals; in other words, this representing the separation of the aircraft activities from the Signal Corps.

William C. Potter, who has been active with the Aircraft Production Board, and who is now head of the equipment division, will continue to have charge of this aspect of aviation work.

While the special aviation report of H. Snowden Marshall, who visited the aviation factories, at the request of President Wilson, has not been made public, it is understood that the President has followed the recommendations of the board in separating aircraft production from the Signal Corps, and in also separating aircraft production from aircraft operation. It was hoped that the entire aircraft administration would have been placed under one man, but, according to the announcement, this has not been done, as production will be under Ryan, and training, etc., under General Kenley.

Tires Coming From Texas

DALLAS, TEXAS, April 29—The Universal Tire and Rubber Association has been organized at Dallas, Texas. The officers are: S. Reele, chairman and organizer, Dallas; O. A. Ryfle, director of sales, Dallas; F. A. Doran, director of merchandising, Dallas; Francis X. Schuler, tire construction expert, Dallas. Members of the advisory board are: Col. S. E. Moss, Dallas; W. C. Forbes, Fort Worth; R. C. Darrah, Fort Worth; J. R. McEntire, McKinney; J. W. Smart, Hawkins, William T. Wood, Kemp; F. M. Compton, Waco; F. J. Woerner, Dallas, and T. J. Pinson, Forney. The organizers plan to establish at Dallas the largest tire manufacturing concern in the Southwest. It has not been incorporated. Tires with a guarantee of 4000 miles are to be made.

$1,000,000 for New York Army Truck Road

NEW YORK, April 29—One million dollars has been provided for the maintenance of the main army motor truck road between Buffalo and New York in a bill presented in the New York Legislature by Senator Sage, and which has passed both houses and now awaits the signature of Governor Whitman. Opinion in Albany is that the bill will become a law before the end of the 30-day period which the Governor is allowed for all measures not signed before the closing of the Legislature, which occurred on Saturday, April 13. With this appropriation New York will spend more money for road maintenance in 1918 than in 1917, even although less money has been appropriated for general road maintenance this year. In 1917 $4,500,000 was appropriated for general maintenance while for this year the appropriation is only $3,750,000. To this latter sum must be added the $1,000,000 which will undoubtedly be appropriated for the military highway, thus making a total appropriation of $4,750,000 or $250,000 more than the total of 1917.

Auction Hal Remains

CLEVELAND, April 27—The remaining property of the defunct Hal Motor Car Co. was auctioned in Cleveland yesterday. One item of stock was ten finished cars, and there was also considerable in the way of accessories, machinery and furniture. The inventory value of the property was placed at approximately $200,000.

Help Short in Hartford

HARTFORD, April 29—Scarcity of labor has hit hard in this section. Service stations are advertising daily for expert mechanics, but they do not seem to be available. Even the factories are having a hard time of it because industries directly connected with the war offer far more lucrative employment.

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News of the Liberty Loan

Milwaukee After $20,000,000

Milwaukee, April 29—A total subscription of not less than $20,000,000 to the Third Liberty Loan is being sought by the Milwaukee city committee, which already has exceeded its minimum quota of $14,600,000 by $4,000,000. The motor car, truck and parts group also has exceeded the informal minimum fixed for itself. One of the largest subscribers in addition to those previously reported is the Wisconsin Motor Mfg. Co., with a purchase of $80,000. Others include: Jonas Automobile Co., $10,000; Davis Mfg. Co., $15,000; Julius Andrae & Sons Co., $12,500; Goodyear Rubber Co., $15,000. Rudolph Hokanson, general manager of the Nash Sales Co., Milwaukee, made a personal subscription of $10,000.

Greensboro Is Oversubscribed

GREENSBORO, N. C., April 29—Greensboro has already oversubscribed its quota to the third Liberty Loan, and a strong drive is now being made in Guilford County to put the whole community over the top and in the class of the favored localities that are receiving honor flags in recognition of the merit of their achievement. If the people of the county measure up to their requirements in the same proportion as have the people of the city there is no doubt of the result.

The drive in the county reached its climax last week, when a committee of canvassers, accompanied by a corps of speakers, held mass meetings at practically every school house in the county, when addresses on the subject of bonds were delivered and the people offered the opportunity to loan their savings to the government. Lists were made of the householders in each community who were not present at their meetings, and members of the committee will make a personal canvass of these later.

Philadelphia Holds Parade

PHILADELPHIA, April 28—In Saturday's "March of Democracy" to boost the Third Liberty Loan, "Automobile Row" was well represented in the arrangements for the pageant. Thirty-five thousand uniformed participants paraded. E. J. Berlet, president of the newly-formed Stability Motors Co., distributer for Atlas, Atterbury and Old Reliable trucks, United Haulage tractors and trailers, was director general and grand marshal; Lee J. Eastman, of the Packard Motor Car Co., was chairman of the committee on decorations, while the vice-chairmen were John D. Howley, of the White Motor Truck Co., and A. E. Maltby, of the Winton Motor Car Co., and president of the Philadelphia Automobile Trade Association. Associated on this committee were: C. R. Cunliffe, of the Cadillac Sales Co.; E. H. Fitch, of the Goodrich Tire Co.; J. E. Gomery, of the Gomery, Schwartz Co.; W. S. Kip, of the Buick Motor Car Co.; A. S. LaRoche, of the Velie Motor Co.; W. Ross Walton, of the Firestone Co., and Edward Wilkie, of the Buick Used Car Co.

Cleveland War Industries Commission Formed

CLEVELAND, April 29—Cleveland industries have been urged to join the Cleveland War Industries Commission, formed by local manufacturers to organize all the industries of the city into one unit for the purpose of more efficiently helping the Government. To present intelligently to government officials the things Cleveland producers sell and to keep Cleveland informed daily of what the Government wishes to buy, a Cleveland bureau has been established at Washington with a sales force and an engineering force. This bureau, however, will not negotiate contracts. The purpose of the commission is to keep within immediate call of the Government, informing it with details of what Cleveland can make, large or small, and advising it of the facilities it has for quick delivery in the particular line.

New Receiver for Pope

HARTFORD, April 29—Arthur L. Shipman was this morning appointed receiver of the Pope Mfg. Co. to succeed the late Colonel George Pope, who died last week. The bond was set at $10,000. The new receiver is a member of the law firm which was counsel for the late Colonel Pope as receiver of the Pope Co. William F. Henney who represented various creditors, said the appointment of Mr. Shipman was in accordance with the wishes of all parties interested.

Drive-Aways Slackening

DETROIT, April 29—Manufacturers are still sending out cars overland to nearby points, but drive-aways to more distant sections have been materially reduced owing to the temporary relief of the freight congestion on outgoing shipments. The Paige-Detroit Motor Car Co. has reduced its drive-aways 50 per cent, as a number of others have. The Dort Motor Car Co. drives away 40 per cent of its production, and the Oakland 50 per cent. Dealers are coming to Dodge Brothers faster than the company can supply them.

The daily production of the manufacturers in this territory is very unsteady, fluctuating according to the amount of materials and parts available. Taken as a whole, the output has had a marked decrease. This lack of sufficient materials and parts to work is caused by the inability to get them to the place where they are to be fabricated. Although the outgoing shipping is in a better condition a great deal of difficulty is still experienced on incoming freight, this, to a great extent, being the controlling factor in the production schedule. The other element that is retarding production is the want of labor.

Time Payment Company for Louisville

LOUISVILLE, April 29—A banking business to finance the purchase of motor vehicles is the newest institution to appear on Louisville's business horizon. The organization is called the Kentucky Finance Corp. and has the backing of some of Louisville's most substantial business men. A suite of offices has been opened in rooms 901-902 Inter-Southern Building, with C. H. Allen, fiscal agent, in charge. Officers of the corporation are: James Norton, president; Dr. R. M. Jones, vice-president; T. E. Boswell, secretary, and Phil. B. Thompson, treasurer. With the addition of Norton L. Gray, the officers named make up the directorate. The Kentucky Finance Corporation is incorporated under the laws of Delaware and has an authorized capitalization of $1,000,000.

Overland Proceeding With War Work

TOLEDO, April 25—The Willys-Overland Co. is now ready to proceed with the manufacture of war products on an enlarged scale. The company plans to increase its working force from 12,000 to 15,000 men at once. For some time past Overland has been installing special machinery and reorganizing parts of its plant for government work, for which it is stated the company has contracts aggregating more than $27,000,000. The company is manufacturing airplane engines and gun carriage parts at its Toledo factory, and has a large shell contract. Officials announce that a new building will be started shortly in which the shells will be manufactured.

During March Overland produced and shipped 832 Curtiss training motors. Unfilled orders for passenger cars greatly exceed those of a year ago at this time, aggregating 18,000 cars. The present output is 500 cars a day, and it is expected that the output will be greatly increased. Production for the present year is placed at 115,000 cars, as compared to 140,000 last year.

Regal Business to Be Sold

DETROIT, April 27—As a result of a meeting of the larger creditors of the Regal Motor Car Co. it was recommended that the receiver sell the business at public auction the latter part of June. The service business will be continued in the meantime and will be sold as a going business.

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Everybody Wonders What About Rubber

Talk of Restriction of Importation, But Nothing Has Happened Yet—Stocks on Hand Good

NEW YORK, April 29—The rubber situation in the United States is inseparably linked up with ship tonnage, and for this reason the rubber trade would not be surprised if a partial embargo were placed on imports. As yet no official commuication has been made with regard to this matter.

The Shipping Board is understood to be still considering the data and information placed before it as a result of the hearing given the rubber trade last week.

In the interim reports have become current that rubber mills will be requested to devote a considerable proportion of their production facilities to the manufacture of rubber footwear for the army. It is not clear exactly where this report originated Rubber manufacturers, however, are not greatly concerned over it for the reason that only about 10 per cent of the rubber imported is used in producing footwear.

The production of tires takes about 70 per cent and the balance goes for mechanical devices and sundries.

The United States Rubber Co. is the largest producer of rubber footwear and this company together with the Hood Rubber Co. produces probably 90 per cent of all the rubber footwear consumed.

It is pointed out by rubber importers that any kind of rubber can be used for footwear whereas certain grades are most suitable for tires; the use of these grades for footwear would be poor efficiency.

The transportation difficulties which up to the present time have checked the receipt of rubber in Akron and other centers are rapidly disappearing. Akron is receiving shipments quite freely from the Pacific Coast, where the bulk of the imports are received. It is stated that the principal rubber mills have good stocks on hand and that even though a partial embargo amounting to 20 per cent were placed on imports this would not compel an immediate restriction of output. The mills could run along for a number of weeks at their present capacities.

During 1917 the United States consumed 182,000 tons of rubber which was about 71 per cent of the world's production, which was 257,000 tons. Of this total approximately 20 per cent was wild rubber, the balance being plantation product. The production of plantation rubber has increased from about two per cent in 1907 to 30 per cent in 1917.

Girl to Resign from Transport Service

WASHINGTON, April 29—Christian Girl, having practically completed his Washington duties, and heeding the urgent demand for his services in the industrial world, is planning to resign within the next few weeks from his position as Director of Motor Transport Service for the Quartermaster Corps.

Girl, who came to Washington last fall, and assumed charge of engineering, purchase, procurement and maintenance of the standardized war trucks, has created an efficient organization composed of skilled automobile engineers, production men and specialists. He has witnessed the beginning of quantity production of the standardized truck. Nine hundred and sixty Class B trucks have been completed and more than 1300 will be finished by the end of this month. The design and contracts for the A and AA trucks have been completely arranged for.

In consequence, Girl believes that he has completed his obligations here, which he assumed at a considerable financial sacrifice, and he now contemplates a return to his usual business affairs. He will remain in Washington, however, until a successor is appointed who can take over his work and tend to the completion of the details.

Brig. General Chauncey B. Baker, who has been holding rank in the U. S. A. Reserves and has been in charge of the Motors Division of the Quartermaster Corps, was to-day appointed colonel in the National Army. Gen. Baker has asked for a transfer for active service in France, repeating a previous request which was refused on the ground that he was necessary here. For the present he still remains the head of the Motors Division.

That the Quartermaster Corps will retain control of the pooled truck activities of the army is definitely assured by the orders signed last week by Maj. General P. C. Marsh, Acting Chief of Staff.

Michigan Takes 552 Fordson Tractors

LANSING, MICH., April 30—At the close of the Michigan War Preparedness Board campaign for the sale of Fordson tractors to farmers in the State of Michigan, a total of 552 orders had been received. Therefore, only a trifle more than half of the 1000 tractors apportioned to Michigan will be taken, as the State assumed no obligation to deliver more than those actually ordered and paid for at the close of the drive. About 12 carloads still remain to be shipped from the Ford factory, but these will all have been delivered to the buyers within a few days.

Chicago Goes Over the Top

CHICAGO, April 29—The motor car industry in Chicago has about gone over the top on the third Liberty Loan. The dealers have practically all reported sales. Over 100 of them reported 100 per cent or over. Among the factories, Stewart-Warner employees have subscribed for $21,400, 1637 employees out of 2200 taking bonds; Vesta Accumulator has a record of 100 per cent with a total of $17,000. Diamond-T has subscribed $12,000, 75 per cent of its employees being represented. Parrett Tractor is 95 per cent.

Federal Order Placed for 20,000 War Trucks

List Includes 8,000 Class B, But Class A Apparently Has Been Sidetracked

WASHINGTON, April 29—Orders for 20,000 motor trucks for war purposes have been approved by the Board of Control, recently appointed to supervise truck activities. The list is made up of 8000 Class B standardized trucks; 8000 four-wheel drive trucks, which is made up of 3500 Jeffery Quads and 4500 F. W. D. In addition, there are 1500 ¾-ton G. M. C. chassis, intended for ambulance work, and lastly, 2500 1½-ton chassis which are to be of standard designs.

The ordering of 1500 G. M. C.'s and the 2500 1½-ton commercial chassis can be taken as an indication that the A and AA standardized trucks of the Quartermaster's Department have been effectively side-tracked and apparently permanently shelved, as has been expected. It has been known for months that great opposition has been aimed at the AA and the A, as well as at the Class B truck, by not a few manufacturers who have opposed the standardized truck program. This order is the first definite indication that these manufacturers have succeeded in blocking the standardized truck program so far as the ¾ and 1½-ton models are concerned.

While the purchase of these 20,000 additional trucks has been approved, no orders have as yet been placed.

Postpone Production Committee Meeting

NEW YORK, May 1—The meeting between the Automobile Production Committee and the War Industries Board which was scheduled for yesterday has been postponed one week, to May 6. This was the meeting at which it was proposed to discuss a further curtailment of automobile production. It is expected that a definite decision will be reached at the meeting next Monday.

Detroit-Buffalo Boats May 6

DETROIT, April 29—Drive-aways to the eastern region will be simplified after May 6 through the opening of navigation between Detroit and Buffalo by the Detroit & Cleveland Navigation Co. Two big steamers, the City of Cleveland III and the City of Detroit III, will undoubtedly be taken up almost entirely by automobiles.

Nelson to Ship New Models

DETROIT, April 29—The A. E. Nelson Co. expects to start its first shipment of new cars in a few days. The chassis are all ready; immediately upon the arrival of the bodies which are ordered and expected any day the cars will be ready to go out.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Charles Johnson, formerly sales manager of the Maltby Auto Specialties Co., and for many years special representative for the Lovell-McConnell Mfg. Co., Newark, has been appointed fiscal agent for the states of Michigan and Ohio for the Square Turn Tractor Co., Chicago.

W. Ashley Gray, prominent in the motor car business in St. Louis for 15 years, has resigned from the Packard Missouri Motor Car Co. to take up insurance work.

Thornton Rogers, formerly of the sales force of the Baltimore branch of the Chevrolet Motor Co., is now Captain Rogers of the Headquarters Co., 115th Infantry, N. A., Camp McClellan, Anniston, Ala.

D. W. Schilling, former service manager for the Baltimore Chevorlet Motor Co., is now Lieutenant Schilling, of the motor section 104th Ammunition Train, Camp McClellan, Anniston, Ala.

H. D. Coulson has joined the sales force of Blair Motor Car Co., Baltimore, Saxon and Gramm-Bernstein distributers.

A. Rubinstein, who was for a time with the Union Motor Car Co., Baltimore Maxwell distributer, has rejoined the sales force of the United Auto Sales Co., Studebaker and Garford distributer.

L. R. Scafe, secretary and treasurer of the Saxon Motor Car Corp. the first 2½ years of the company's existence, has been appointed comptroller of the Dayton-Wright Aeroplane Co., Dayton, Ohio.

Wesley Deem, formerly production manager of the Columbia Motors Co., Detroit, has been appointed production manager of the Lane Motor Truck Co., Kalamazoo, Mich.

J. E. Buckley, formerly assistant manager of the Buffalo, N. Y., branch of the Ford Motor Co., has been transferred to the Fargo branch as manager.

Charles C. Traphagen, Firestone Tire dealer in Richardson, Tex., has sold his business and has joined the aviation section of the army.

W. C. Freeman, Dallas, Tex., has been appointed manager for the Quick Tire Service. F. E. Morriss, whom he succeeded, has been transferred to Tampa, Fla.

E. O. Thackston has been appointed Texas manager for the American Motors Co. His headquarters will be at Dallas.

John H. Miller, tire manager for the F. L. Shaw Automobile Co., Studebaker distributer, has gone to Chicago, where he has taken over a Ford agency.

Charles Johnson, formerly sales manager of the Maltby Auto Specialties Co., and for many years special representative for the Lovell-McConnell Mfg. Co., Newark, has been appointed fiscal agent for the states of Michigan and Ohio for the Square Turn Tractor Co., Chicago.

Jack Griffin has been appointed advertising manager of the Chevrolet Motor Co. of California, with headquarters in Oakland. He has been in the publicity business for many years.

Lester I. Weiss, St. Louis, connected with motor car selling for 18 years, beginning as office boy, has jointed the Cadillac salesforce in that city.

Joseph O. Welker, St. Louis, has been made manager of the Gramm-Bernstein truck department of the Welling Motor Co., 5033 Delmar.

George Dunville, St. Louis, has been made manager of the new used car department of the Tate-Gillham Motor Car Co.

Charles Reuchard has joined the sales staff of the Harry Newman, Inc., St. Louis.

Benjamin Briscoe, who left the Briscoe Motor Corp., Jackson, last year to answer his country's call, is now a lieutenant commander in the United States Navy, with headquarters, presumably, in Paris. He is in charge of the assembly and maintenance of the hydroplane service for chasing submarines and is director of several large plants at various points abroad.

R. A. McNamee has been appointed traffic manager for the Liberty Motor Car Co., Detroit.

Vesper Talks in Cleveland

CLEVELAND, April 25—President F. W. A. Vesper of the National Automobile Dealers Association addressed a business confidence meeting of the northern Ohio dealers in this city to-night. He told of the progress being made by the association and explained the war service recommendations made by the war service committee, as told in Motor World last week.

Scrap Metal and Rubber Prices

NEW YORK, April 29—Following are scrap metal prices paid by New York dealers during the past week. They are from *Iron Age:*

	Cents per lb.
Copper, heavy and crucible	23.50
Copper, heavy and wire	23.50
Copper, light and bottoms	21.00 to 21.50
Brass, heavy	16.25 to 16.50
Brass, light	12.00 to 12.25
Heavy machine composition	23.75 to 24.00
No. 1 yellow rod brass turnings	13.00 to 13.50
turnings	19.00 to 20.00
No. 1 red brass or composition	
Lead, heavy	6.50
Lead, tea	5.50
Zinc	5.75

Prices paid by reclaimers for scrap rubber are:

	Cents per lb.
Automobile tires	5-5½
Inner tubes No. 1	21-22
Inner tubes No. 2	10¾-11

Trucks to the Rescue When Detroit Strikes

Factories Never Missed the Trolleys —Trucks and Cars Replaced Them

DETROIT, April 27—In this day of automotive transportation, means of getting to work does not entirely depend on electric cars, as was well illustrated during the recent street car men's strike in Detroit.

As soon as it was learned that the city might be without electric car transportation, that it was probable the street car men would walk out, steps were at once taken to arrange for truck routes throughout the city. Nearly every manufacturer as well as those industries engaged on war work brought into play all the available trucks to gather up their workmen. Announcements of truck routes were placed in the daily papers and posters were placed around the factories.

Henry Ford & Son, Lincoln Motor Co., and the Continental Motors Corp., each had space in the newspapers announcing the routes of the trucks. The Packard Motor Car Co. placed notices on the bulletin boards in its factory. Arrangements were made to pick up both the day shift and the night shift. At the time these posters or notices were hung it was not known that a strike would be called but these plans were instituted in order to have everything in readiness should a strike be called outside of regular working hours.

As a result the companies were able to take care of a big percentage of their employees in the matter of transportation. No serious loss in production was felt.

4-Ton Packards Coming

DETROIT, April 29—It is reported that the Packard Motor Car Co. will put 400 4-ton trucks on the market in July.

Motor Car Securities Quotations

	Bid	Asked
*Ajax Rubber Co	55	60
*J. I. Case T. M. Co. pfd	82	86
Chalmers Motor Co. com	6	8
Chalmers Motor Co. pfd	30	40
*Chandler Motor Co	78	82
Chevrolet Motor Co	118	122
*Fisher Body Corp. com	31	35
*Fisher Body Corp. pfd	80	87
Fisk Rubber Co. com	49	52
Fisk Rubber Co. 1st pfd	98	103
Fisk Rubber Co. 2d pfd	70	75
Firestone Tire & Rub. Co. com	96	99
Firestone Tire & Rub. Co. pfd	95	96
*General Motors Co. com	116	118
*General Motors Co. pfd	78½	79½
*B. F. Goodrich Co. com	44½	46
*B. F. Goodrich Co., pfd	96	100
Goodyear Tire & Rub. Co., com	148	152
Goodyear Tire & Rub. Co. pfd	96	98
Grant Motor Car Corp	3	4½
Hupp Motor Car Corp. com	2¾	3½
Hupp Motor Car Corp. pfd	78	85
International Motor Co. com	22	25
International Motor Co. 1st pfd	52	56
International Motor Co. 2d pfd	24	28
*Kelly-Springfield Tire Co. com	41	43
*Kelly-Springfield T. Co. 1st pfd	75	85
*Lee Rubber & Tire Corp	13½	14
*Maxwell Motor Co., Inc., com	25½	26
*Maxwell M. Co., Inc., 1st pfd	51	54
*Maxwell M. Co., Inc., 2d pfd	18	23
Miller Rubber Co. com	105	108
Miller Rubber Co. pfd	95	97
Packard Motor Car Co. com	92	96
Packard Motor Car Co. pfd	89	92
Paige-Detroit Motor Car Co	16½	18½
Peerless Truck & Motor Corp	13	15
Portage Rubber Co. com	..	104
†Reo Motor Car Co	14	16
*Saxon Motor Car Corp	6½	8
Standard Motor Construction Co.	12	14
*Stewart-Warner Speed. Corp	54	56
*Studebaker Corp. com	36	37
*Studebaker Corp. pfd	80	90
Swinehart Tire & Rubber Co	26	30
United Motors Corp	24⅞	25⅛
*U. S. Rubber Co. com	57⅛	58
*U. S. Rubber Co. pfd	102	103
*White Motor Co	42	42½
*Willys-Overland Co. com	17	17½
*Willys-Overland Co. pfd	81	83
Standard Parts Co	67	70

*At close April 27. Listed New York Stock Exchange. †Par value $10.

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Return Loads Bureau For All New England

PROVIDENCE, R. I., April 29—One of the biggest steps yet taken in the development of Return Loads Bureaus in the United States was made here to-day at the Providence Chamber of Commerce when the New England Highways Return Loads Association was formed.

This organization will establish Return Loads Bureaus throughout all of New England, but more particularly at the present time in Rhode Island and Massachusetts. Connecticut already has a very efficient Return Loads Bureau organization in operation, and the various bureaus in Connecticut will co-operate with those to be established in Massachusetts and Rhode Island to the end that the entire New England district will be served by its motor trucking equipment to the best possible advantage during the summer of 1918 and this fall and in the spring of 1919.

Officers of the new association were elected as well as an executive committee of six made up of two members from each of the states of Connecticut, Massachusetts and Rhode Island. The working organization is now being planned and letters being prepared to be sent out to shippers and truckmen for the necessary information.

To-day's meeting was attended by forty-two men interested in the Return Loads Bureau from the angle of either the shipper or the truckman. The various government departments were also represented.

The members of the executive committee for the three states are as follows:

Rhode Island

Ex-Governor C. D. Kimball.....Providence
E. C. Southwick.....Providence

Massachusetts

E. F. Rowe.....New Bedford
John C. Robinson.....Springfield

Connecticut

W. S. Conning.....Hartford
M. B. Russell.....Bridgeport

Insurance Man for Service Man

THE Utica Motor Car Co., Utica, selling the Cadillac and Reo, has a former insurance man for service work. He is the man who greets customers when they come into the place, checks the cars and sees that everyone gets real service, which is about 90 per cent prompt attention.

To Make Line of Trucks

DETROIT, April 28—The Power Truck & Tractor Co. has been incorporated with a capital stock of $2,500,000 to manufacture 1, 2, 3½ and 5-ton trucks. Standard units will be used. The company will also manufacture two tractor models. It is also stated that the 1-ton model truck the company has adopted is now being placed on the market, having been in use the last year and a half. The personnel of the company will be announced later. A factory building has been purchased in Detroit. The company plans to build 3000 trucks and 3000 tractors this year.

Starts Movement For Literature For Soldiers

DENVER, April 29—Harry G. Moock, secretary of the Denver Automobile Trades Association, has instituted a movement to collect books and technical automobile magazines to present to the automobile men who have gone from dealer organizations to the army. A committee has been appointed consisting of W. J. Haughey, W. W. Barnett and Wells Littlefield, who will take the matter up with the factories and different automobile trades associations and make it a nation-wide movement. Publicity asking for books and trade papers is being run in newspapers in this section. The plan is being conducted with the co-operation of the American Library Association through the Liberty War Service with headquarters in Washington. The books and magazines desired are those referring to automobile construction.

Lane Motor Truck Increases Production

KALAMAZOO, MICH., April 29—Preparations are now being made at the Lane Motor Truck Co. to greatly increase the production of worm-driven trucks of 3, 5 and 7 tons' capacity. These trucks are all fitted with electric lighting, high-tension magneto, electric starting, cabin curtains, windshield, bumper and with all regulation chassis equipment. W. W. Lang is vice-president and L. W. Hamilton is secretary-treasurer and general manager.

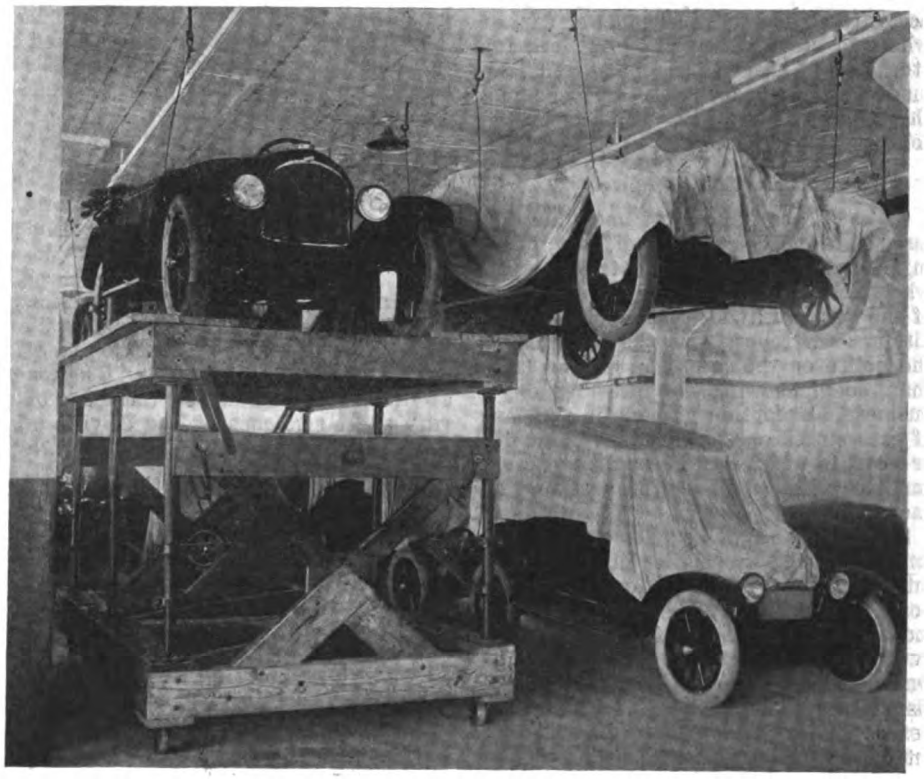
How One Dealer Stores His Stock of Cars

STORAGE of cars during the winter months and other seasons of the year for that matter is something of a problem. Making the most of the available space has been very sensibly worked out in the new home of Willys-Overland, Inc., at Hartford, Conn. The building, which is of concrete with brick facings, when erected was fitted with plugs in the ceilings into which screw hooks are placed for suspending cars.

The shop superintendent constructed a traveling loader. Telescoping iron pipes of large diameter form the four supporting posts. Another iron pipe with suitable handles provides the means of raising or lowering the traveling platform.

Cars are brought up on the elevator which is stopped even with the traveling platform. When the car has been rolled on the platform the latter is wheeled to the position in which the car is to be suspended from the ceiling. The hooks and cable attachments are secured to the car and the platform is lowered enough to take up the slack.

Then the platform is moved from in under the car which hangs from the ceiling. The necessary suspending hooks threaded at one end are made by the blacksmith in the company's own plant.



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Philadelphia Against Proposed Police Law

Would Require Garagemen to Report Every Day to Police Cars Left for Storage

PHILADELPHIA, April 29 — The Philadelphia Garage Association at its latest session added thirteen members to the roll and a demand has been made for many more application blanks. At the next meeting, which will be in May, officers for the year will be elected. Plans for the July motor run to Atlantic City were discussed, but no further action was taken.

Association members are not kindly disposed toward an ordinance introduced this month in Select Council by C. Lawrence Smith, which, for the benefit of the police, requires the making of daily reports by public garages to the police department and provides a penalty of $25 for each violation. The ordinance is now in the hands of the law committee.

Police Are Criticised

The police department, especially the bureau for recovering lost and stolen motor cars, recently dissolved, has been the recipient of much caustic criticism from motor car owners, associations and the daily press and it was largely in the hope of aiding the department to recover lost prestige in this regard that the ordinance was introduced. Motor car thefts have been so consistently frequent that there have been a number of shifts in the department.

The objectionable ordinance, so considered because entailing unnecessary annoyance and work on garage owners, in substance provides that from July 1, next, owners or managers of garages for public use in Philadelphia must keep an accurate record of each motor car of whatever kind which shall be left for storage and that daily reports must be made on blanks or forms furnished by the police department, containing the following information:

Information Required

Make of car, year of manufacture, number of cylinders, color of body, parts injured or missing, license tag number, when left and when called for and name of the person leaving the vehicle. In addition, each report must be returned to the police on the following day no later than noon, showing the previous day's business. Exception is made in the case of cars stored on contract by the month, or year, in which case it would be necessary to report only on the first day of each month.

Some time ago garage owners belonging to the association in their own interest framed a statute for making reports of a protective character every six months, the plan being for each garage owner to be licensed by the state highway department. It is regarded by association members as likely that the proposed "police protective" ordinance just introduced will die in committee.

The High Cost of Cars in Australia

AMERICANS who protest against the increased cost of motor cars in the United States may take some comfort in the prices which prevail for the same vehicles in Australia. The dealers in Brisbane are offering six-cylinders touring model Buicks at $2,675, the six roadster at $2,625, the four-cylinder touring at $2,100, and the four-cylinder roadster at $2,020. The Chandler six is priced at $2,750, and the Grant at $1,975. Overlands, which have been used for two years, are advertised at $1,000.

Class Journal Buys Horseless Age

NEW YORK CITY, April 30—The Class Journal Co., publishers of Motor World has purchased *Horseless Age* of New York City, the oldest motor car publication in America. The publication of *Horseless Age* will be continued under the new management. The Class Journal Co. also publishes *Automotive Industries, Commercial Vehicle, Motor Age* and *Transfer and Storage.*

Wilmington After Return Load Bureau

WILMINGTON, DEL., April 29—An effort is being made by a number of truck concerns handling freight between New York, Philadelphia, Wilmington, Baltimore and Washington to develop an intermediate return load service. Stops are being made in some of the more important towns, where merchants are interviewed and arrangements made for handling shipments in either direction. Some of the trucks go through with conspicuous placards inviting the townspeople to patronize the service.

It is believed that it will be possible to build up this traffic to such an extent as to warrant short-haul as well as long-haul trips.

So far as Wilmington is concerned it is already well supplied with these facilities, in addition to having unusual rail and water facilities.

Buffalo-New York Route

BUFFALO, April 24—The following route has been laid out and recommended for drive-aways en route from Buffalo to New York, through Batavia, Hornell, Elmira, Binghamton and Middletown. The distance along this route is 430 miles, or about 75 miles shorter than the Mohawk valley route via Albany. The roads are all hard-surfaced, and there are only very short stretches of bad driving, aggregating not more than 15 miles. New York City is entered via the Fort Lee ferry. The road is easily found all the way from Buffalo and may be covered in from 18 to 20 hr. actual running time.

Wilmington Dealers See Tractors Tested

Five Different Makes Put Through Their Paces by Department of Agriculture

WILMINGTON, DEL., April 27—According to figures furnished by R. O. Bausman, county farm agent, in co-operation with the Department of Agriculture and Delaware College, in a test of tractors on farm work—the first of a competitive nature in Delaware—made last week near Dover, it was readily proved that in every case the fuel cost per acre was less than the cost of horse or mule feed for plowing on an acre basis. Six tractors were in competition, as follows:

Huber Light Four, kerosene burner, 12-25 hp., demonstrated by N. C. Rose of Bridgeville, local dealer.

I. H. C. Mogul, kerosene burner, 8-16 hp., Charles H. Hardesty, Dover.

Case, kerosene burner, 9-18 hp., Hope Hardware Co., Dover.

Cleveland, gasoline burner, 12-20 hp., Standard Motor Sales Co., Salisbury, Md.

Knickerbocker Form-a-Tractor, gasoline burner, demonstrated by Drysdale & Burton of Dover, and Hercules Motor Co. of Wilmington.

Below is the record made by the tractors which took part in the fuel test, in which two acres were plowed.

The Case plowed about half an acre with an obstruction on one of the plow points, which may have added slightly to the amount of fuel it required. Before starting on the test all fuel tanks were filled and after the plowing of the two-acre plot was completed the fuel tanks were refilled. The amount required in refilling was the amount of fuel used in plowing the two acres.

The test took place under ordinary conditions, the ground being level and the soil a combination of clay and sand, on a farm which had been in use for many years.

The first of the three days was devoted to simple plowing by each machine on a plot laid out for it. The demonstration, while under the auspices of the Kent County Farm Bureau, was for the benefit of the farmers of the entire State.

Gasoline Increases in Detroit

DETROIT, April 29—The price of gasoline in Detroit has gone up 1½ cents. The new price, which became effective April 18, is 23.2 cents per gallon. Kerosene is now 12.2 cents per gallon instead of 11.2 cents.

Results of Tractor Tests by Delaware Department of Agriculture

Make	Plows	Time, h. m.	Fuel Required	
			Kerosene	Gasoline
Huber Light Four	3	2-05	4 gal. 3½ qt.	1 qt.
Case, 9-18	2	2-40	5 gal. 2¾ qt.	¼ qt.
I. H. C. Mogul, 8-16	2	2-57	5 gal. ¾ qt.	1⅛ qt.
Cleveland Caterpillar	2	2-52	.....	5 gal. 1 qt.
Knickerbocker	2	3-33	.....	5 gal. ¾ qt.

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Blue Books Ready

NEW YORK, April 29—The 1918 volumes of the Automobile Blue Books are now ready. New roads, the reconstruction of old ones and the reclamation of many others that formerly were impassable compelled the redrafting of 167,103 miles of roads for the books.

Special routes to all of the cantonments have been included in the new volumes. The logging of these roads was in most cases made from cities nearest to which the camps are located, so that the tourist who plans to visit any of them need only take his Blue Book way to the large city near the cantonment to find in the same volume detailed guidance to the camp which has his particular interest.

The maps have been completely revised. Hundreds of new ones have been added, and besides the redraftings of old ones most of them have been enlarged, new detail added and larger area covered. Head-notes are a feature. They summarize in short paragraphs the kind of road, how much of it is traveled, nature of the country—whether hilly, mountainous or level—and which sections are difficult or impassable.

Garages, service stations and hotels have been classified in a special index. Populations of towns, their altitude and their situation as regards scenic or other charm are also indicated. Automobile laws and traffic regulations of various states and cities are incorporated. They keep the traveler in constant touch with what civil and state authorities will require of him.

Volume 9, just added to the series—and which last year was part of Volume 8—brings the total number to eleven special territories covered for the motorist's guidance. The new volumes are divided as follows:

VOLUME 1—New York State and Adjacent Canada. Including Long Island and adjacent States as far as New Haven, Danbury and Waterbury, Conn.; Pittsfield, Mass.; Rutland and Burlington, Vt.; Cleveland, Ohio; Pittsburgh, Wilkes-Barre, Scranton and Delaware Water Gap, Pa.; Trenton, Asbury Park and Atlantic City, N. J.

VOLUME 2—New England and Maritime Provinces. Including Long Island, New York City and Eastern New York State as far as the eastern shore of the Hudson; also Albany, Lake George and Lake Champlain Section, Montreal and Quebec.

VOLUME 3—New Jersey, Pennsylvania, Delaware, Maryland, District of Columbia and West Virginia. Including all main highways out of New York City with extension routes into Southern New York State, Eastern Ohio to Canton and Cleveland and Northern Virginia.

VOLUME 4—Michigan, Indiana, Ohio and Kentucky. Including extension routes into adjacent States and trunk-line routes across Illinois to Chicago, excepting Upper Peninsula of Michigan, which is included in Vol. 5.

VOLUME 5—Illinois, Minnesota, Wisconsin, Iowa and Missouri. Including Upper Peninsula of Michigan and extension routes into all adjacent States.

VOLUME 6—The Southeastern States. Including Virginia, West Virginia, North and South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana and Tennessee with extension routes into adjacent States, including Washington, D. C., and a single trunk-line route to New York City.

VOLUME 7—Montana, Wyoming, Colorado, New Mexico, Texas, North and South Dakota, Nebraska, Kansas, Oklahoma, Arkansas and Louisiana. With extension routes to Spokane, Salt Lake City and Phoenix, and trunk-line routes eastward to the Mississippi River.

VOLUME 8—California, Nevada, Utah and Arizona. With extension routes into Oregon, Texas and New Mexico.

VOLUME 9—Washington, Oregon, Idaho and British Columbia. With extension routes into California, Montana and two trunk lines to Salt Lake City.

VOLUME A—New York City Metropolitan Blue Book. Two hundred round trips within [illegible] miles of New York—half-day, full-day, week-end and three-day runs.

VOLUME C—Chicago Metropolitan Blue Book. Two hundred round trips within a radius of 100 miles of Chicago—half-day, full-day, week-end and three-day runs.

The War Tax

We never say anything about war tax. If the subject comes up and threatens to spoil our chance for a sale we say in effect, "Surely you are not trying to buy a truck and beat the Government out of its war tax, are you?" When he sees he is caught then there is no doubt that he can be sold.—R. Satterthwaite, Pacific Kissel Kar Branch, Seattle.

Charleston Adopts Credit Terms

CHARLESTON, W. VA., April 27—Eighteen firms, constituting the Automobile Trade Association of Kanawha County, at a meeting held last week adopted credit terms in dealing with customers as a means of stopping the abuse of credit here. Under the rules adopted all customers will be required to settle their accounts on the first of the month following that in which they were contracted, and failure to pay by the 30th of the month will be met by a refusal to extend further credit. All accounts outstanding March 30 are to be settled before April 30.

Books Received

"History's Lesson of the Motor Truck" is the title of a booklet written by P. W. Litchfield, vice-president and factory manager of the Goodyear Tire & Rubber Co. It is shown how pneumatic tires have supplanted solid and steel tires, first on bicycles, then on carriages, and motor cars. The corollary is that pneumatic tires will supplant solid tires for trucks as well.

The Studebaker Corp. has published and is distributing a history of the company written by Albert Russel Erskine, its president. The book gives in an interestingly lucid way the biography of the Studebaker brothers and the history of the business they started and developed. There are a number of pictures of the plant, which was no more than a small frame building in 1856. Other pictures show its continual growth, as well as the addition of branches and salesrooms.

The Racine Auto Tire Co., Racine, Wis., is distributing mileage record booklets, containing a small table to be filled out, by which a car owner can tell the record of his tires.

Harrisburg Buys Bonds

HARRISBURG, PA., April 29—The Harrisburg Motor Dealers' Association, which bought $200 of the first Liberty Loan, has taken $500 of the third. The Motor Club of Harrisburg has $1,000 in each of the first and third.

Eastern Office for Bergie

NEW YORK, April 29—The Bergie National Spark Plug Co. has opened an Eastern sales branch here in the Buick Building, 1737 Broadway. R. M. Hodes, the company's Eastern territory manager, is in charge.

Bob Lee Takes a Partner

ST. LOUIS, April 29—Announcement is made of the marriage of Capt. Robert E. Lee to Ruth Medora Snyder, this city. Lee is secretary of several motor trade associations in this city and is manager of the St. Louis show.

Specifications

ON the pages that follow are three tables of specifications—passenger cars, lamp bulbs and motor trucks. The table of tire and tube prices, which has always been an important part of the monthly Motor World Guide, is omitted because of the great number of changes in prices made by manufacturers during the past 10 days. Many makers have not yet prepared their new lists; others have not definitely decided whether their prices will change or not. In view of these facts, it was deemed wise, in order to preserve the accuracy of the table, to omit it from this issue. It will appear, corrected to date, in the issue of June 5.

Coming Events

Racing

Uniontown, Pa.	Uniontown Speedway Assn.	May 16
Sheepshead Bay, N. Y.	Championship	May 30
Chicago	Chicago Speedway	June 22
Cincinnati	Cincinnati Speedway	July 4

Conventions

Lima, O.	Ohio State Automobile Assn.	May 3-7
Hot Springs, Va.	Convention National Association of Automobile Accessory Jobbers.	June 5-12

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Passenger Cars

MOTOR WORLD GUIDE

Passenger Cars

This table appears in the first issue every month. It is corrected every month and brought up to date.

MAKE AND MODEL	Price	No. of Cylinders	Bore and Stroke, Inches	S.A.E. H.P.	Piston Displacement Cubic Inches	High Gear Ratio	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION System	LUBRICATION Type of Pump	ELECTRIC SYSTEM Make	ELECTRIC SYSTEM Voltage	IGNITION Make	IGNITION Plug	CARBURETION Make of Carburetor	CARBURETION Fuel Feed	Clutch Type	TRANSMISSION GEARSET Location	TRANSMISSION GEARSET Forward Speeds	TRANSMISSION GEARSET Make	TRANSMISSION Final Drive	TRANSMISSION Car Drives Through	TRANSMISSION Rear Axle Type	TRANSMISSION Make of Rear Axle	TRANSMISSION Torque Taken By	RUNNING GEAR Wheelbase	RUNNING GEAR Tires	RUNNING GEAR Rims	RUNNING GEAR Wheels	RUNNING GEAR Rear Springs	Make of Speedometer	Number Crankshaft Bearings	BEARINGS Gearset	BEARINGS Rear Axle	BEARINGS Front Wheel
Abbott 6-60	$1595	6	3½x5½	20.4	303.1	4.30-1	Cont.	L.	H.	P.	Sp-Pr.	P.	Remy	6	Remy	⅞	Stmbg	V.	D.	Unit M.	3	Muncie	Sp.B.	Springs.	¼ F.	Salsbry.	Springs.	122	34x4	SS.	Wd.	S-E.	Stewart.	3	B.	BR.	R.
Allen 41	1095	4	3½x5	22.5	220.9	4.25-1	Own	L.	H.	T.	Cir-Sp.	P.	A-Lite-2	6	Conn	⅞	Stmbg	V.	P.	Unit M.	3	Own	Sp.B.	Springs.	F.	Adams	Springs.	112	32x3½	SS.	Wd	S-E.	Stewart.	2	BR	B.	R.
American B	1595	6	3½x5	23.4	230.1	4.42-1	Rutnbr.	L.	H.	P.	Sp-Pr.	P.	G&D-2	6	G&D	⅞	Zenith	V.	P.	Unit M.	3	Mech	Sp.B.	Springs.	¼ F.	Salsbry.	Springs.	122	32x4	SS.	Wd.	S-E.	VanS	3	BP.	BR	B.
Anderson 20	1465	6	3½x4½	25.3	224.0	4.58-1	Cont.	L.	H.	P.	Sp-Pr.	P.	West-2	6	Conn	⅞	Zenith	V.	D.	Unit M.	3	Drstn	Sp.B.	Springs.	¾ F.	Clumba	Springs.	120	33x4	SS.	Wd.	S-E.	Stewart.	3	B.	R.	B.
Anderson 400-F	1925	6	3½x5½	29.4	303.1		Cont.				West		Bosch		Stmbg	V.	D.					G-Lees			¾ F.				33x4		Wr.	S-E.						
Apperson 8-18	2550	8	3½x5	33.8	331.8	4.25-1	Own	L.	H.	T.	Sp-Pr.	G	Bijur-2	6	Remy	⅞	Johnson	V.	D.	Amid	3	Own	Sp.B.	Springs.	SF.	Own	Springs.	130	34x4	SS.	Wd.	¾ Ell.	VanS	3	B.	R.	R.
Apperson 8th Anniversary	3500																												32x4½		Wr							
Auburn 6-39	1345	6	3½x4½	25.3	224.0	4.42-1	T-Hart.	L.	H.	P.	Sp-Pr.	P.	Remy-2	6	Remy	⅞	Rayfld	V.	P.	Unit M.	3	G-Lees	Sp.B.	Springs.	¼ F.		Tor.A.	120	34x4	SS.	Wd	S-E.	Stewart.	3	B.	R.	B.
Auburn 6-44	1685	6	3½x5½	29.4	303.1	4.08-1	Cont.	L.	H.	P.	Sp-Pr.	P.	Delco-2	6	Delco	⅞	Rayfld	V.	P.	Unit M.	3	G-Lees	Sp.B.	Springs.	F.		Tor.A.	131	35x4½	SS.	Wd	Cant.	Stewart.	3	B.	R.	B.
Austin 3750	12	2½x5	39.7	389.5	3.75-1	Widly	I.	H.	P.	Pr.	G.	Delco-2	6	Delco	⅞	Stmbg	V.	D.	Unit M.	3	Muncie	Sp.B.	Springs.	F.	Own	Springs.	142	34x4½	QD.	Wd.	DCant	Stewart.	3	B.	BR	R.
Bell 18	995	4	3½x4½	22.5	187.7		{G.B.&S Cont.	L.	H.	T.	Cir-Sp.	P.	Dynto-2	6	A.Kent	⅞	Zenith	V.	D.	Unit M.	3	Covert	Bevl	Springs.	¼ F.	Adams	Springs.	114	32x3½	QD.	Wd.	¾ Ell	Stewart.	2	R.	R.	B.
Biddle H	2650	4	3½x5½	22.5	226.4	4.40-1	Buda	L.	H.	T.	Cir-Sp.	G.	G&D-2	6	Eismn	⅞	Zenith	V.	P.	Unit M.	4	Own	Sp.B.	Springs.	F.	Own	Springs.	121	32x4	QD.	Wr.	S-E.	Warner	3	BB	R.	R.
Bour-Davis 18A	1680	4	3½x5	22.5	220.0	4.00-1	Cont.	I.	H.	P.	Cir-Sp.	G.	West	6	West	⅞	Miller	V.	P.	Unit M.	3	Detroit	Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	118	32x4	QD.	Wd	S-E.	VanS	3	B.	R.	B.
Bour-Davis 18B	1785	6	3½x5½	29.4	303.0	4.07-1	Cont.	L.	H.	P.	Cir-Sp.	P.	West	6	West	⅞	Stmbg	V.	P.	Unit M.	3	Detroit	Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	118	33x4½	QD.	Wd.	S-E.	VanS	3	B.	R.	B.
Brewster Chassis	5500	4	4 x5½	25.6	276.0	4.25-1	Own	K	C.	P.	Pr.	G.	U.S.L.	12	Bosch	⅞	Zenith	V.	C.	Unit T.	3	Own	Sp.B	Tor.T.	F.	Own	Tor.T.	125	34x4½	SS.	Wd	Cant.	Stewart.	3	B.	R.	R.
Briscoe B-4-24	825	4	3½x5½	16.3	163.0	4.23-1	Own	L.	H.	T.	Cir-Sp.	P.	A-Lite	6	Conn	⅞	Buick	G.	C.	Unit X	3	Own	Bevl	Tor.A.	S-F	Own	Tor.A.	104	30x3½	C.	Wd	Ell.	Stewart.	2	Brp.	BR	B.
Buick E-4-34, E-4-35	795	4	3½x4½	18.2	170.0	4.08-1	Own	I.	H.	P.	Cir-Sp.	G	Delco-1	6	Delco	⅞	Marvel	V.	C.	Amid	3	Own	Bevl	Springs.	¾ F.	West-M	Springs.	106	31x4	C.	Wd	S-E.	Stewart.	3	B.	R.	B.
Buick E-6-44-45	1265	6	3½x4½	27.3	242.0	4.08-1	Own	I.	H.	P.	Cir-Sp.	G	Delco	6	Delco	⅞	Marvel	V.	D.	Amid	3	Own	Sp.B	Tor.	F.	West-M	Tor.T.	118	34x4	SS.	Wd	Cant.	Stewart.	4	B.	R.	R.
Buick E-6-49	1495	6	3½x4½	27.3	242.0	4.61-1	Own	I.	H.	P.	Cir-Sp	G	Delco	6	Delco	⅞	Marvel	V.	D.	Amid	3	Own	Sp.B.	Tor.	F.	West-M	Tor.T.	124	34x4½	SS.	Wd	Cant.	Stewart.	4	B.	R.	R.
Cadillac 57	2970	8	3½x5½	31.2	314 0	4.43-1	Own	L	C.	P.	Pr.	G	Delco-1	6	Delco	⅞	Own	P.	D.	Unit M.	3	Own	Sp.B.	Springs.	F.	Timken	Tor.T.	125	35x5	SS.	Wd	Plat.		3	Brp.	R.	R.
Case U	1875	6	3½x5½	29.4	303.0	4.45-1	Cont.	L.	H.	P.	Sp-Pr.	P.	West.	6	West	⅞	Rayfld	V.	P.	Unit M.	3	G-Lees	Sp.B.	Springs.	¾ F.	Clumba	Springs.	125	35x4½	SS.	Wd.	S-E.	Stewart.	3	B.	R.	R.
Chalmers 6-30	1565	6	3½x4½	25.3	224.0	{4.75-1 {5.09-1	Own	L.	C.	T.	Sp-Pr.	G	West-2	6	Remy	⅞	Stmbg	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	S-F	Timken	Springs.	{117 {122	32x4 34x4	SS.	Wd	S-E.	Stewart.	3	R.	R.	R.
Chandler 1595	6	3½x5	29.4	289.0	4.40-1	Own	L.	C.	P.	Sp-Pr.	P.	West	6	Bosch	⅞	Rayfld	V.	P.	Unit M.	3	Own	Sp.B.	Springs.	F.	Own	Tor.A.	123	34x4	SS.	Wd.	S-E.	Stewart.	3	B.	B.	R.
Chevrolet 490	685	4	3½x4	21.7	171.0	3.65-1	Own	I.	H.	P.	Sp-Pr.	G	A-Lite-2	6	Remy	⅞	Zenith	G.	C.	Amid	3	Own	Sp.B.	Springs.	¾ F.	Own	Springs.	102	30x3½	C.	Wd	Cant.	Stewart.	3	BP.	R.	C&C
Chevrolet FA	935	4	3½x5½	21.7	224.0	4.25-1	Own	I.	H.	P.	Sp-Pr.	G	A-Lite-2	6	Remy	⅞	Zenith	V.	C.	Amid	3	Own	Sp.B.	Springs.	¾ F.	Own	Springs.	108	33x4	SS.	Wd	Cant.	Stewart.	3	BP.	R.	C&C
Chevrolet D4 & D5	1385	8	3½x4	36.4	286.9	4.25-1	Own	I.	H.	P.	Sp-Pr.	G	A-Lite-2	6	Remy	⅞	Zenith	V.	C.	Amid	3	Own	Bevel	Springs.	¾ F.	Own	Tor.T.	120	34x4	SS.	Wd	Cant.	Stewart.	3	BP.	R.	C&C
Cole 870	2395	8	3½x4½	39.2	346.4	4.45-1	North.	L.	H.	P.	Pr.	G	Delco-2	6	Delco	⅞	Stmbg	V.	C.	Unit M.	3	North	Sp.B.	Springs.	F.	Clumba	Springs.	127	33x5	SS.	Wd	S-E.	Warner	3	B.	R.	R.
Columbia C & D	1450	6	3½x4½	25.3	224	4.75-1	Cont.	L.	H.	P.	Sp-Pr.	P.	Remy	6	A.Kent	⅞	Stmbg	V.	P.	Unit M.	3	Warner	Sp.B.	Springs.	¾ F.	Timken	Tor.T.	115	32x4	SS.	Opt.	Cant.	Stewart.	3	B.	R.	R.
Comet C-50	1285	6	3½x5	29.4	289.0	4.50-1	Lewis	L.	H.	P.	Sp-Pr.	P.	Dynto	6	Delco		Miller	V.	D.	Unit M.	3	Mech	Sp.B.	Springs.	¾ F.	W-Weiss	Tor-T.	125	33x4		Opt.	Cant.	Stewart.	3	B.	R.	B.
Commonwealth 4-40	1095	4	3½x5	19.6	192.0	4.00-1	Lycmg	L.	H.	T.	Cir-Sp.	P.	Dynto-2	6	A.Kent	⅞	Carter	V.	D.	Unit M.	3	Mech	Sp.B.	Springs.	F.	Peru	Springs.	115	32x3½	SS.	Opt.	¾ Ell.	VanS	2	B.	BR	B.
Crawford 6-40	2250	6	3½x5½	29.4	303.0	4.08-1	Cont.	L.	H.	P.	Cir-Sp.	P.	West-2		Bosch	⅞	Stmbg	V.	P.	Unit M.	3	Own	Sp.B.		¾ F.	Timken	Springs.	122½	32x4		Wd	S-E.	Stewart.	3	R.	R.	R.
Crow-Elkhart CE-36	995	4	3½x5	19.6	192.0	4.25-1	Own	I.	H.	T.	Cir-Sp.	G	Dynto-2	6	Conn	⅞	Zenith	V.	P.	Unit M.	3	Covert	Bevl	Springs.	F.	Peru	Springs.	115	32x3½	SS.	Opt.	S-E.	Stewart.	3	B.	R.	C&C
Cunningham V	{4250 {4750	8	3½x5	45.0	442.0	{3.08-1 {4.08-1	Own	L.	H.	P.	Pr.	G	West-2	6	Delco	⅞	Stmbg	V.	D.	Unit M.	3	B-Lipe	Sp.B.	Springs.	F.	Timken	Tor.T.	{132 {142	35x5 37x5	Opt.	Opt.	¾ Ell.	Warner	3	Brp.	R.	R.
Daniels B	3250	8	3½x5	33.8	331.8	4.45-1	Her-Sp.	L.	H.	P.	Pr.	G	West-2	6	West	⅞	Zenith	V.	D.	Unit M.	3	B-Lipe	Sp.B.	Springs.	¼ F.	Timken	Tor.T.	127	34x4½	QDR	Wd	S-E.	Warner	3	BR.	R.	R.
Davis H, I & K	1585	6	3½x4½	25.3	224.0	4.58-1	Cont.	L.	H.	P.	Sp-Pr.	P.	Delco-2	6	Delco	⅞	Stmbg	V.	C.	Unit M.	3	Warner	Sp.B.	Springs.	¾ F.	Clumba	Springs.	119	34x4	SS.	Wd	S-E.	Stewart.	3	BP.	R.	B.
Davis J & I	1950	6	3½x5½	29.4	303.0	4.42-1	Cont.	L.	H.	P.	Sp-Pr.	P.	Delco-2	6	Delco	⅞	Stmbg	V.	C.	Unit M.	3	Warner	Sp.B.	Springs.	F.	Clumba	Springs.	125	34x4½	QD.	Wd	S-E.	Stewart.	3	BP.	R.	R.
Dispatch 1250	4	3½x5	22.5	220.9	4.12-1	Wis	L.	H.	T.	Pr.	G.	USL-1	12	Delco	⅞	Rayfld	V.	CU	Amid	4	Own	Int.C.	Rad.Rd.	D.	Own	Springs.	120	36x3½	QD.	Wd	Ell.	Corbin	3	B.	B.	B.
Dixie Flyer LS-35	995	4	3½x5	16.9	165.9	4.75-1	Lycmg	L.	H.	T.	Cir-Sp.	P.	Dynto-2	6	Conn	⅞	Carter	V.	D.	Unit M.	3	G-Lees	Sp.B.	Tor.T.	F.	Peru	Tor.T.	112	32x3½	SS.	Wd.	¾ Ell.	VanS	2	Brp	BR	B.
Doble-Detroit D	3750	2	5 x4	20.0	314.0	1.25-1	Own			P.	Sp-Pr.	P.	Wagnr-2	12	Doble	⅞		P.			S		Springs.	S-F	Americ'n	Tor.A.	135	35x5		Wd.	S-E.	Waltham	2	B.	B.	B.
Dodge Brothers 885	4	3½x4½	24.0	212.3	{4.17-1 {3.62-1	Own	L.	H.	P.	Cir-Sp.	G.	N-East-1	12	Delco	⅞	Stewart	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	F.	Own	Tor.T.	114	32x3½	SS.	Opt.	¾ Ell.	J-M	3	RP.	R.	R.
Dorris 6-80		6	4 x5	38.4	377.0	3.50-1	Own	I.	H.	P.	Pr.	G.	West-2	6	Bosch	⅞	Stmbg	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	¼ F.	Timken	Springs.	132	33x5	SS.	Wr.	S-E.	Warner	7	R.	R.	R.
Dort 11	865	4	3½x5	19.6	192.0	4.00-1	Own	L.	H.	T.	Cir-Sp.	P.	West-2	6	Conn	⅞	Carter	G.	C.	Unit M.	3	Mech	Bevl	Springs.	¼ F.	W-Weiss	Tor.T.	105	30x3½	QD.	Opt.	Cant.	Stewart.	2	BP.	RP.	B.
Douglas 2150	8	3½x5	33.8	331.8		Her-Sp.			P.		G.	West-2	6	West	⅞	Zenith	V.	D.		3			Springs.	F.	Clumba	Tor.A.	122	34x4		Wd.	Cant.	VanS					
Elcar DF	1095	4	3½x5	19.6	192.4		Lycmg	L.	H.	T.	Cir-Sp.	P.	Dynto-2	6	A.Kent	⅞	L-O	V.	D.	Unit M.	3	Mech	Sp.B.	Springs.	F.	Salsbry.	Springs.	116	32x3½	SS.	Wd	S-E.	Stewart.	2	B.	R.	R.
Elcar 1295	6	3½x4½	25.3	224.0	4.50-1	Cont.	L.	H.	P.	Sp-Pr.	P.	Dynto	6	A.Kent	⅞	Stmbg	V.	P.	Unit-M.	3	Muncie	Sp.B.	Springs.	F.	Salsbry.	Springs.		33x4	SS.	Wd	S-E.	Stewart.	3	B.	R.	R.
Elgin F 1095	6	3x4½	21.6	196.2	4.45-1	Falls	I.	H.	T.	Cir-Sp.	P.	Wagnr-2	6	Wagnr	⅞	Stmbg	V.	P.	Unit M.	3	Mechs	Sp.B.	Springs.	¼ F.	Adams	Tor.A.	117	33x4		Wd	Cant.	VanS	3	BP.	B.	R.
Empire 50-51	1125	4	3½x5	24.0	235.8	4.33-1	T-Hart	T.	H.	P.	Cir-Sp.		A-Lite-2	6	Conn	⅞	Stmbg	V.	P.	Unit M.	3	Mechs	Bevl	Springs.	¼ F.	Peru	Tor.T.	115	33x4	SS.	Opt.	S-E.	Stewart.	3	BP.	BR	B.
Empire 70A	1345	6	3½x4½	25.3	224.0	4.58-1	Cont.	L.	H.	P.	Sp-Pr.	P.	A-Lite-2	6	Conn	⅞	Stmbg	V.	P.	Unit M.	3	Mechs	Sp.B.	Springs.	F.	Hess	Springs.	120	34x4	SS.	Opt.	S-E.	Stewart.	3	BP.	BR	B.

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PASSENGER CARS—Continued

MAKE AND MODEL	Price	No. of Cylinders	Bore and Stroke, Inches	S.A.E. H.P.	Piston Displacement Cubic Inches	High Gear Ratio	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION System	LUBRICATION Type of Pump	ELECTRIC SYSTEM Make	ELECTRIC SYSTEM Voltage	IGNITION Make	IGNITION Plug	CARBURETION Make of Carbureter	CARBURETION Fuel Feed	Clutch Type	TRANSMISSION GEARSET Location	TRANSMISSION GEARSET Forward Speeds	TRANSMISSION GEARSET Make	TRANSMISSION Final Drive	TRANSMISSION Car Drives Through	TRANSMISSION Rear Axle Type	TRANSMISSION Make of Rear Axle	TRANSMISSION Torque Taken By	RUNNING GEAR Wheelbase	RUNNING GEAR Tire	RUNNING GEAR Rims	RUNNING GEAR Wheels	RUNNING GEAR Rear Springs	Make of Speedometer	BEARINGS Number Crankshaft Bearings	BEARINGS Gearset	BEARINGS Rear Axle	BEARINGS Front Wheel
Oakland.....34-B	1050	6	2½x4½	19.0	177.0	4.50–1	North...	I.	H...	P.	Sp-Pr...	G.	Remy-2.	6	Remy...	⅞	Marvel..	V.	C..	Unit M..	3	Warner....	Bevel.	Springs..	F..	West.M.	Springs..	112	32x4	SS...	Wd.	S-E...	Stewart..	3	BP..	BR.	B...
Oldsmobile.....37	1195	6	2½x4½	19.0	177.0	4.58–1	North...	I.	H...	P.	Pr.....	G.	Remy-2.	6	Remy...	⅞	Johnsn..	V.	C..	Unit M..	3	North.....	Sp.B..	Springs..	F..	West.M.	Springs..	112	32x4	SS...	Wd.	S-E...	Stewart..	3	Brp.	BR.	R...
Oldsmobile.....45-A	1550	8	2½x4½	26.4	246.7	4.92–1	Own....	L.	H...	P.	Pr.....	G.	Delco-2..	6	Delco...	⅞	Ball....	V.	C..	Unit M..	3	Own.....	Sp.B..	Springs..	F..	West.M.	Springs..	120	34x4	SS...	Wd.	½ Ell..	Stewart..	2	Brp.	BR.	R...
Olympian.....	1085	4	3½x4½	16.9	149.3	4.75–1	Own....	I.	H...	T.	Pr.....	G.	A-Lite-2.	6	Conn....	....	Stmbg..	V.	D..	Unit X..	3	Own.....	Sp.B..	Springs..	¾ F..	Own....	Rad.Rd	112	32x3½	.....	Opt.	Trans.	Stewart..	2	BP..	BR.	R...
Overland.....90	850	4	3½x5	18.2	178.9	4.00–1	Own....	L.	H...	T.	Cir-Sp...	P.	A-Lite-2.	6	Conn....	⅞	Tilltsn..	V.	C..	Unit X..	3	Own.....	Bevel.	Tor.T...	¾ F..	Own....	Tor.T...	106	31x4	C....	Wd.	Cant..	Stewart..	2	Brp.	BR.	R...
Overland.....85-B-4	985	4	4½x4½	27.2	240.5	4.00–1	Own....	L.	H...	T.	Cir-Sp...	G.	A-Lite-2.	6	Conn....	⅞	Tilltsn..	V.	C..	Unit X..	3	Own.....	Bevel.	Tor.T...	¾ F..	Own....	Tor.T..	112	32x4	SS...	Wd.	Cant..	Stewart..	5	BR.	BR	R...
Overland.....85-B-6	1195	6	3½x4½	25.3	224.0	4.60–1	Cont....	L.	H...	P.	Sp-Pr...	P.	A-Lite..	6	Conn....	⅞	Tilltsn..	V.	C..	Unit X..	3	Own.....	Sp.B..	Tor.T...	¾ F..	Own....	Tor.T...	116	32x4	C....	Wd.	Cant..	Stewart..	3	BR.	BR.	R...
Owen Magnetic.....W-42	5300	6	4 x5½	38.4	414.7	4.00–1	Own....	I.	Sp-g	P.	Pr.....	G.	Own....	24	Bosch...	⅞	Zenith...	V.	Om	Unit M..	....	Magnetic..	Sp.B..	Springs..	F...	Amer...	Springs..	142	35x5	SS...	Wr..	S-E...	Warner..	3	....	R...	R...
Owen Magnetic.....M-25	3300	6	3½x5½	29.4	303.1	4.08–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Own....	14	Bosch...	⅞	Zenith...	V.	Om	Unit M..	....	Magnetic..	Sp.B..	Springs..	¾ F..	Timken..	Springs..	125	34x4½	SS...	Wd.	S-E...	Warner..	3	....	R...	R...
Owen Magnetic.....O-36	3950	6	3½x5½	33.6	364.5	3.50–1	Buda...	L.	H...	P.	Sp-Pr...	G.	Own....	28	Bosch...	⅞	Zenith...	V.	Om	Unit M..	....	Magnetic..	Sp.B..	Springs..	F...	Amer...	Tor.T...	136	35x5	SS...	Wr..	S-E...	Warner..	4	....	R...	R...
Packard.....{3-25 / 3-35	3950 / 4300	12	3 x5	43.2	424.1	4.36–1	Own....	L.	C...	P.	Pr.....	G.	Bijur-2..	6	Delco...	⅞	Own....	P.	D..	Unit M..	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.A...	128 / 136	35x5	QD..	Wd.	S-E...	Walthm.	3	BR.	B...	R...
Paige.....6-39	1395	6	3½x5	23.4	230.1	4.41–1	Rutnbr..	L.	H...	P.	Sp-Pr...	P.	G&D-2..	6	Remy...	⅞	Stmbg..	G.	P..	Unit M..	3	Own.....	Sp.B..	Tor.T...	¾ F..	Salsbry.	Tor.T...	117	32x4	SS...	Wd.	Cant..	Stewart..	3	Brp.	BR.	R...
Paige.....6-55	1870	6	3½x5½	29.4	303.1	4.35–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Remy-2.	6	Remy...	⅞	Rayfld..	V.	P..	Unit M..	3	Own.....	Sp.B..	Tor.T...	¾ F..	Salsbry.	Tor.T...	127	35x4½	SS...	Wd.	Cant..	Stewart..	3	Brp.	BR.	B...
Pan-American.....G-5	1650	6	3½x5	23.4	230.0	4.45–1	Rutnbr..	L.	H...	P.	Sp-Pr...	P.	G&D...	6	G&D...	⅞	Rayfld..	V.	P..	Unit M..	3	Warner....	Sp.B..	Springs..	S-F.	Timken..	Springs.	120	33x4½	SS...	Wd.	S-E...	Stewart..	3	B...	R...	R...
Paterson.....6-45	1295	6	3½x4½	25.4	224.0	4.50–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Delco...	6	Delco...	⅞ L	Stmbg..	V.	C..	Unit M..	3	Detroit....	Sp.B..	Springs.	F...	Hess....	Springs.	120	32x4	C....	Wd.	½ Ell..	Stewart..	3	P...	R...	B...
Peerless.....56	2550	8	3½x5	33.8	331.8	4.90–1	Own....	L.	H...	P.	Pr.....	G.	A-Lite-2.	6	A.Kent.	⅞	Ball....	V.	D..	Unit M..	3	B-Lipe....	Sp.B..	Springs.	S-F.	Timken..	Springs.	125	35x4½	SS...	Wd.	Plat...	Warner..	3	BR.	R...	R...
Pierce-Arrow.....C-4	4800	6	4 x5½	38.4	414.7	3.78–1	Own....	T.	H...	P.	Pr.....	G.	West-2..	6	Bosch...	⅞	Own....	P.	C..	Amid...	4	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.T...	134	34x4½	QD.	Wd.	¾ Ell..	Warner..	7	B..	BR.	R...
Pierce-Arrow.....B-4	5500	6	4½x5½	48.6	524.8	3.53–1	Own....	T.	H...	P.	Pr.....	G.	West-2..	6	Bosch...	⅞	Own....	P.	C..	Amid...	4	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.T...	142	35x5	QD.	Wd.	¾ Ell..	Warner..	7	B..	BR.	R...
Pierce-Arrow.....A-4	6500	6	5 x7	60.0	824.7	2.88–1	Own....	T.	H...	P.	Pr.....	G.	West-2..	6	Bosch...	⅞	Own....	P.	C..	Amid...	4	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.T...	147½	36x5½	QD.	Wd.	¾ Ell..	Warner..	7	B..	BR.	R...
Pilot.....6-45	1395	6	3½x5	23.4	230.1	4.25–1	T-Hart..	L.	H...	P.	Sp-Pr...	P.	Delco-2..	6	Delco...	⅞	Tiltsn...	V.	P..	Unit M..	3	Muncie....	Sp.B..	Springs.	¾ F..	Hess....	Tor.A...	120	32x4	SS...	Wd.	Cant..	Stewart..	3	BR.	BR.	R...
Premier.....6-C	2285	6	3½x5½	27.3	295.3	4 45–1	Own....	I.	H...	P.	Sp-Pr...	G.	Delco-2..	6	Delco...	⅞	Johnson.	V.	P..	Unit M..	3	Detroit....	Sp.B..	Springs.	S-F.	Timken..	Springs.	125½	35x4½	SS...	Wd.	S-E...	Warner.	3	BP..	R...	R...
Princess.....36-F	875	4	3½x4½	22.5	187.7	4.25–1	G.B.&S..	L.	C...	T.	Cir-Sp...	P.	Disco-2..	6	Splitdrf..	⅞	Schblr...	V.	D..	Unit M..	3	G-Lees....	Sp.B..	Springs.	F...	Own....	Springs.	108	32x3½	.....	Wd.	¾ Ell..	VanS...	3	BR.	BR.	B...
Regal.....J	795	4	3½x4½	19.6	182.8	4.25–1	Own....	L.	H...	T.	Cir-Sp...	P.	A-Lite...	6	A.Kent..	½	Carter...	V.	C..	Unit M..	3	G-Lees....	Bevel.	Tor.T...	F...	Peru....	Tor.T...	108	30x3½	QD..	Wd.	Cant..	Stewart..	3	B...	BR.	B...
Reo.....T	1225	4	4½x4½	27.2	240.5	4.30–1	Own....	F.	H...	P.	Cir-Sp...	P.	Remy-2.	6	Remy...	½ L	Johnson.	V.	D..	Amid...	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Springs.	120	34x4	SS...	Wd.	S-E...	Stewart..	3	R...	R...	R...
Reo.....M	1550	6	3 5/16x5½	30.4	306.6	4.30–1	Own....	F.	H...	P.	Cir-Sp...	P.	Remy-2.	6	Remy...	½ L	Rayfld..	V.	D..	Amid...	3	Own.....	Sp.B..	Springs.	F...	Own....	Tor.A...	126	34x4½	SS...	Wd.	Cant..	Stewart..	3	R...	R...	R...
Roamer.....D-4-75	2950	4	4 x6	25.6	301.6	3.77–1	Dusnbrg	H	H...	P.	Sp-Pr...	G.	Bijur....	6	Bosch...	⅞	Stmbg..	V.	P..	Unit M..	3	G-Lees....	Sp.B..	Springs.	¾ F..	Hess....	Tor.T...	128	32x4½	SS...	Wr..	S-E...	Stewart..	3	BR.	B...	B...
Roamer.....C-6-54	2250	6	3½x5½	29.4	303 1	3.77–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Bijur....	6	Bosch...	¼	Stmbg..	V.	P..	Unit M..	3	G-Lees....	Sp.B..	Springs.	¾ F..	Hess....	Tor.T...	128	32x4	SS...	Wr..	S-E...	Stewart..	3	BR.	B...	B...
Saxon.....S-4	1045	6	2½x4½	19.8	175.3	4.75–1	Cont....	L.	H...	T.	Cir-Sp...	P.	Wagnr-2	6	Remy...	⅞	Stmbg..	G.	P..	Unit X..	3	Own.....	Sp.B..	Tor.T...	S-F.	Timken..	Tor.T...	112	32x3½	SS...	Opt.	Cant..	Stewart..	3	Brp.	R...	R...
Sayers.....Six-42	1395	6	3½x4½	25.3	224.0	4.75–1	Cont ..	L.	....	P.	Sp-Pr...	....	Delco...	6	Delco...	⅞	Zenith...	V.	P..	Unit M..	3	Mechanics.	Sp.B..	Springs..	¾ F.	Hess....	Springs.	118	32x4	SS...	Wd.	S-E...	Stewart..	3	B..	R	B...
Scripps-Booth.....Six-39	1195	6	2½x4½	19.0	177.0	4.5 –1	North...	I.	H...	P.	Sp-Pr...	G.	Remy-2.	6	Remy...	⅞	Marvel..	V.	C..	Unit M..	3	Warner....	Bevel.	Springs..	F...	West.M.	Springs.	112	32x4	SS...	Opt.	S-E...	Stewart..	3	BP.	BR	B...
Simplex.....V	7000	6	4½x6½	45.9	563.7	3.00–1	Own....	L.	C...	P.	Sp-Pr...	G.	Bosch-2.	12	Eismn...	⅞	Newcmb	P.	D..	Unit M..	4	Own.....	Sp.B..	Springs..	F...	Own....	Springs.	143½	37x5	QD.	Opt.	S-E...	Stewart..	3	R...	BR.	R...
Singer.....17	4100	6	4 x5½	38.4	414.7	3.77–1	Her-Sp..	T.	H...	P.	Pr.....	G.	West-1..	6	Bosch...	⅞	Rayfld..	V.	D..	Unit M..	4	Muncie....	Sp.B..	Springs..	F...	Timken..	Tor.T...	139	35x5	QD.	Wr..	Cant..	Warner..	3	B..	R...	R...
Standard.....G	2450	8	3½x5	33.8	331.8	4.45–1	Her-Sp..	L.	H...	P.	Pr.....	G.	West-2..	6	West....	⅞	Zenith...	V.	P..	Unit M..	3	G-Lees....	Sp.B..	Springs.	S-F.	Timken..	Springs.	127	34x4½	.....	Wd.	S-E...	Stewart..	3	BR.	R...	R...
Stanley.....Steamer	2800	2	4 x5	12.8	125.6	1.5 –1	.....	...	...	...	.....	...	.....	...	.....	...	.....	...	P.	.....	...	.....	Sp.G..	Rad.Rd	.....	Own....	Engine.	130	35x4½	SS...	Wd.	Ell...	Stewart..	...	.....	.....	.....
Stearns.....SKL4	1935	4	3½x5½	22.5	248.5	4.50–1	Own....	K	C...	P.	Sp-Pr...	G.	West-2..	12	Remy...	⅞	Schblr...	V.	D..	Unit M..	3	Own.....	Sp.B..	Springs..	S-F.	Own....	Tor.A...	119	34x4	SS...	Wd.	Cant..	Stewart..	3	BR.	BR.	R...
Stearns.....SK8	2700	8	3½x5	33.8	331.8	4.75–1	Own....	K	C...	T.	Sp-Pr...	G.	West-2..	12	Remy...	⅞	Rayfld..	V.	D..	Unit M..	3	Own.....	Sp.B..	Springs..	S-F.	Own....	Tor.A...	125	35x4½	SS...	Wd.	Cant..	Stewart..	3	BR.	BR.	R...
Stephens.....Salient Six	1585	6	3½x4½	25.3	224.0	4.75–1	Own....	I.	H...	T.	Pr.....	G.	Delco...	6	Delco...	½	Stmbg..	V.	P..	Unit M..	3	Mech.....	Sp.B..	Springs..	F...	Hess....	Springs.	118	32x4	QD.	Wd.	S-E...	VanS...	3	BR.	R...	R...
Studebaker.....SH4–40	995	4	3½x5	22.5	192.4	4.08–1	Own....	L.	H...	P.	Cir-Sp...	G.	Wagnr-2	6	Remy...	½	Schblr...	V.	C..	Amid...	3	Own.....	Sp.B..	Springs..	S-F.	Own....	Springs.	112	32x3½	SS...	Wd.	S-E...	Warner..	3	RP.	R...	R...
Studebaker.....EG	1795	6	3½x5	36.0	354.0	3.71–1	Own....	L.	H...	P.	Cir-Sp...	G.	Wagnr.	6	Remy...	⅞	Ball....	V.	C..	Amid...	3	Own.....	Sp.B..	Springs..	S-F.	Own....	Springs.	126	33x4½	SS...	Wd.	S-E...	Warner..	4	RP.	R...	R...
Studebaker.....EH6–50	1395	6	3½x5	29.4	288.6	4.00–1	Own....	L.	H...	P.	Cir-Sp...	G.	Wagnr-2	6	Remy...	½	Ball....	V.	C..	Amid...	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Springs.	119	32x4	SS...	Wd.	S-E...	Warner..	4	RP.	R...	R...
Stutz.....S	2750	4	4½x6	30.6	360.8	3.50–1	Own....	T.	H...	P.	Pr.....	G.	Remy-2.	6	Bosch...	⅞	Stmbg..	P.	C..	Unit X..	3	Own.....	Bevel.	Tor.T...	¾ F..	Own....	Tor.T...	130	32x4½	SS...	Wr..	S-E...	Stewart..	3	B...	BR.	R...
Templar.....A445	2085	4	3⅞x5½	18.2	197.0	4.81–1	Own....	I.	C...	P.	Pr.....	G.	Remy-2.	6	Remy...	⅞	Zenith...	V.	P..	Unit M.	3	Detroit....	Sp.B..	Springs..	S-F.	Amer...	Springs.	118	32x4	SS...	Wd.	S-E...	Warner..	3	B...	B...	R...
Velie.....38	1340	6	3½x4½	25.3	224.0	4.75–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Remy-2.	6	Remy...	⅞	Rayfld..	V.	P..	Unit M..	3	Durstn....	Sp.B..	Springs.	S-F.	Timken..	Springs.	115	32x4	SS...	Wd.	½ Ell..	VanS...	3	B...	R...	R...
Velie.....39	1595	6	3½x5½	29.4	303.1	4.45–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Remy-2.	6	Remy...	⅞	Rayfld..	V.	P..	Unit M..	4	Warner....	Sp.B..	Springs.	S-F.	Timken..	Springs.	124	33x4½	SS...	Wd.	½ Ell..	VanS...	3	B...	R...	R...
Westcott.....S-18	1940	6	3½x5½	29.4	303.1	4.45–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Delco-2..	6	Delco...	⅞	Rayfld..	V.	D..	Unit M..	3	B-Lipe....	Sp.B..	Springs.	S-F.	Timken..	Tor.T...	125	35x4½	SS...	Wd.	Cant..	Warner..	3	BR.	R...	R...
White.....16 Valve Four	5000	4	4½x5½	28.9	326.3	.....	Own....	T.	H...	P.	Pr.....	G.	Lee-N-2.	12	.....	⅞	Own....	V.	D..	Unit M..	4	Own.....	Sp.B..	Springs.	S-F.	Own....	Springs.	137½ / 124½	35x5	U....	Wd.	S-E...	Stewart..	3	B...	B...	B...
Willys-Knight.....88-4	1625	4	4½x4½	27.2	240.5	4.30–1	Own....	K	C...	T.	Sp-Pr...	P.	A-Lite-2.	6	Conn....	⅞	Tiltsn...	V.	C..	Unit X..	3	Own.....	Sp.B..	Tor.T...	F...	Own....	Tor.T...	121	34x4½	SS...	Wd.	Cant..	Warner..	3	Brp.	R...	R...
Willys-Knight.....88-8	2100	8	3½x4	36.4	286.3	4.60–1	Own....	K	C...	T	Pr.....	P.	A-Lite-2.	6	Remy...	⅞	Zenith...	V.	C..	Unit X..	3	Own.....	Sp.B..	Tor.T...	F...	Own....	Tor.T...	125	34x4½	SS...	Wd.	Cant..	Warner..	2	Brp.	R...	R...
Willys.....89	1450	6	3½x5½	29.4	303.1	4.00–1	Cont....	L.	H...	P.	Sp-Pr...	P.	A-Lite-2.	6	Conn....	⅞	Tilltsn..	V.	C..	Unit X..	3	Own.....	Sp.B..	Tor.T...	¾ F..	Own....	Tor.T...	120	33x4½	SS...	Opt.	Cant..	Stewart..	3	Br..	BR.	R...
Winton.....22A	3150	6	3½x5½	33.7	347.9	4.45–1	Own....	L.	C...	P.	Pr.....	P.	Bijur-2..	6	Bosch...	⅞	Rayfld..	V.	D..	Unit M..	4	Own.....	Sp.B..	Springs.	F...	Own....	Tor.R...	128	36x4½	QD.	Wd.	¾ Ell..	Warner..	4	BR.	R...	R...
Winton.....22	3850	6	4½x5½	48.6	524.8	4.08–1	Own....	L.	C...	P.	Pr.....	P.	Bijur-2..	6	Bosch...	⅞	Rayfld..	V.	D..	Unit M..	4	Own.....	Sp.B..	Springs.	F...	Own....	Tor.R...	138	37x5	QD.	Wd.	¾ Ell..	Warner..	4	BR.	R...	R...
Woods.....54	2950	4	2¾x4	12.1	95.0	8.25–1	Cont....	L.	H...	T.	Sp-Pr...	P.	Own....	60	A.Kent..	⅞	Stmbg..	G.	M.	Unit M..	....	Electric...	Worm.	Springs.	S-F.	Own....	Tor.A...	124	35x4½	QD..	Wd.	Cant..	Stewart..	3	....	BR.	R...

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Lamp Bulbs

MOTOR WORLD GUIDE

Lamp Bulbs

Car and Model	HEAD LAMPS Volt	HEAD LAMPS Cp.	SIDE LAMPS Volt	SIDE LAMPS Cp.	TAIL LAMP Volt	TAIL LAMP Cp.	DASH LAMP Volt	DASH LAMP Cp.	Fuses Amp.	Socket	Wiring System	Type of Dimmer	Remarks
Abbott-Detroit	6-8	15	6-8	4H	6-8	2	6-8	2	.....	E.S.	S.	.....	Dash Ediswan D.
Allen.....HI	6-8	18	6-8	4	6-8	2	6-8	2	15	E.S.	S.	D. Bulb	
American.....B	6-8	15	6-8	4H	3-4	2	3-4	2	20	E.S.	S.	.....	Dash lamp double.
Anderson....20	6-8	21	6-8	12H	6-8	4	6-8	4	.....	E.S.	S.	Warner lens.	
Apperson.....	6-8	18	.....	.....	6-8	2	6-8	2	10	E.D.	D.	Resist.....	
Auburn 39 B...	6-8	15	6-8	4	6-8	2	6-8	2	25	E.S.	S.	.....	Dash Ediswan D.
Auburn 44.....	6-8	18	6-8	12	6-8	2	6-8	2	.....	E.S.	S.	.....	Dash Ediswan D.
Austin.....	6-8	24	6-8	4 H	6-8	4	.....	.....	.....	E.S.	S.	.....	
Bell.....18	6-8	18	6-8	4 H	6-8	2	6-8	2	15	E.S.	S.	.....	Dash Ediswan D.
Biddle.....H	6-8	21	6-8	4 H	6-8	2	6-8	2	10	E.S.	S.	.....	Dash Ediswan D.
Brewster.....	12-16	40	12-16	4H	6-8	2	6-8	2	10	E.S.	S.	.....	Dash Ediswan D.
Briscoe.....	6-8	21	.....	.....	6-8	2	6-8	2	20	E.S.	S.	Resist.....	Dash Ediswan D.
Bour Davis....	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	.....	.....	
Buick.....	6-8	15	6-8	4H	6-8	2	6-8	2	C.B.	E.S.	S.	.....	
Cadillac.....57	6-8	18	6-8	6	3-4	2	3-4	2	C.B.	E.S.	S.	.....	
Case.....U	6-8	18	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
Chalmers..6-30	6-8	15	6-8	4H	6-8	2	6-8	2	{30} {15}	E.S.	S.	.....	
Chandler.....	6-8	16	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
Chevrolet..4-90	6-8	12	.....	.....	6-8	2	6-8	2	20	E.D.	S.	.....	
Chevrolet...FA	6-8	15	.....	.....	6-8	2	6-8	2	20	E.D.	S.	.....	Dash Edison D.
Chevrolet....D	6-8	15	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	Dash Edison D.
Cole.....870	6-8	21	.....	.....	3-4	2	3-4	2	.....	E.S.	S.	.....	Dash lamp Ediswan D.
Columbia..C&D	6-8	15	6-8	4	6-8	2	6-8	2	None	E.S.	S.	.....	Dash Ediswan D.
Commonwealth.	6-8	15	6-8	4H	6-8	4	6-8	2	.....	E.S.	S.	.....	Dash lamp Ediswan D.
Crawford..6-40	6-8	15	.....	.....	6-8	4	6-8	2	15	E.S.	S.	.....	Dash lamp Ediswan D.
Crow-Elkhart...	6-8	15	6-8	4H	6-8	2	6-8	2	10	E.D.	S.	Series.....	Dash lamp Ediswan D.
Cunningham..V	6-8	15	6-8	4	6-8	4	6-8	4	15	E.S.	S.	Warner lens.	Tail lamp Ediswan S.
Daniels.....B	6-8	18	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	Warner lens.	Cowl lamp Candel.
Davis.....	6-8	15	.....	.....	6-8	4	6-8	4	.....	E.D.	S.	Warner lens.	Dash lamp Ediswan D.
Dispatch.....	12-16	21	.....	.....	12-16	2	6-8	2	2	E.D.	D.	.....	Two dash lamps.
Dixie Flyer.....	6-8	15	.....	.....	3-4	2	3-4	2	10	E.D.	D.	Resist.....	
Doble-Detroit..	12-16	32	.....	.....	6-8	2	6-8	2	None	E.D.	S.	.....	Dash and tail in Series
Dodge Brothers.	12-16	15	.....	.....	12-16	2	12-16	2	.....	E.S.	S.	Resist.....	
Dorris....6-80	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	.....	Inspec. lamp, 6 v., 4 cp.
Dort..... 11	6-8	15	.....	.....	6-8	4	6-8	2	10	E.S.	S.	Resist.....	Dash lamp Ediswan D.
Elgin.....A	6-8	21	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
Elcar.....	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	.....	
Empire.....	6-8	15	6-8	4H	3-4	2	3-4	2	20	E.S.	S.	.....	Dash lamp Ediswan D.
Fiat.....E-17	6-8	15	6-8	4H	6-8	2	6-8	4	.....	E.S.	.....	Warner lens.	Tonneau lamp 6 v. 2 cp.
Ford.....T	6-8	...	.....	.....	.....	.....	.....	.....	.....	E.D.	.....	.....	
Franklin.....9	12-16	21	12-16	4H	6-8	2	{6-8 12-16}	{2 2}	10	E.D.	.....	.....	Panel 12-16 v., 2 cp.
F. R. P...45-B	12-16	25	12-16	6	12-16	3	12-16	3	6-3	E.S.	S.	.....	
F. R. P. Premier 6-O	6-8	21	6-8	4H	6-8	2	6-8	2	C.B.	E.S.	S.	.....	Dash lamp double.
Glide.....6-40	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	.....	
Grant.....G	6-8	15	6-8	4H	6-8	2	6-8	2	20	.....	S.	Resist.....	Dash lamp Ediswan D.
HAL.....21A	6-8	18	.....	.....	6-8	2	6-8	4	15	E.S.	.....	Warner lens.	H'dlamps doub., tail and dash single.
Halladay.....	6-8	15	6-8	4H	6-8	4	6-8	2	.....	E.S.	S.	.....	Dash Ediswan D.
Harroun....A-1	6	15	.....	.....	3	2	3	2	15	E.S.	S.	Resist.....	Dash Ediswan D.
Haynes.....	6-8	15	6-8	12H	6-8	2	6-8	2	5	E.D.	D.	Series.....	
Hollier.....	6-8	15	.....	.....	6-8	2	6-8	2	20	E.S.	S.	Series.....	
Hudson.....	6-8	15	.....	.....	3-4	2	3-4	2	.....	E.S.	S.	Resist.....	Dash lamp Ediswan D.
Hupmobile....R	6-8	15	6-8	2	6-8	2	6-8	2	15	E.S.	S.	Resist.....	
Inter-State...T.	6-8	15	.....	.....	6-8	2	6-8	2	10	E.D.	S.	Resist.....	
Jackson....349	6-8	15	.....	.....	6-8	2	6-8	2	20	E.D.	S.	.....	
Jones....26AB	6-8	21	6-8	2	6-8	2	6-8	2	15	E.S.	S.	Resist.....	
Jordan... 5-60	6-8	18	6-8	4H	6-8	3	6-8	3	20	E.S.	S.	.....	
King.....F	6-8	18	6-8	4H	6-8	2	6-8	2	10	E.S.	S.	Series.....	
Kissel.....	6-8	18	....	.....	6-8	2	6-8	2	20	E.D.	S.	Series.....	Dash lamp single.
Kline.... 6-38	6-8	15	6-8	4	6-8	2	6-8	2	15	E.S.	S.	.....	Fuses 5 amp. in all but hdlps.
Lexington 6R...	7	30	.....	.....	6	2	6	4	15	E.S.	S.	D. Bulb....	Dash lamp Ediswan D.
	....	32	.....	.....	.....	.....	.....	.....	5	.....	.....	Hdlamps...	Spotlight, 7 v., 21 cp., double contact.
	7	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Liberty.....10B	6-8	15	.....	H	6-8	2	6-8	2	.....	E.S.	S.	.....	
Locomobile....	6-8	21	6-8	6	6-8	4	6-8	2	10	E.S.	S.	Resist.....	Tonneau & Steplights 6-8v., 2 cp.
McFarlan.....X	6-8	24	6-8	12H	6-8	2	6-8	2	10	E.S.	S.	Warner lens.	Dash lamp Ediswan D.
Madison.....	6-8	15	6-8	6H	6-8	4	6-8	4	5	E.S.	S.	Series.....	Dash lamp Ediswan D.
Maibohm A....	12	18	12	4	6	2	6	2	None	E.S.	S.	Resist.....	
B....	6-8	18	6-8	4	6-8	2	3-4	2	15	E.S.	S.	Resist.....	
Marmon.....34	6-8	24	6-8	8H	6-8	4	6-8	4	20	E.S.	S.	Warner lens.	
Maxwell.....25	12-16	24	12-16	.....	12-16	2	12-16	2	20	E.S.	S.	Resist.....	
Mercer...22-73	12-16	24	12-16	4	12-16	4	12-16	4	10	E.S.	S.	Clear lens..	
Metz.....25	6-8	15	6-8	4H	6-8	2	6-8	2	50	E.D.	S.	Shad. rays..	
Mitchell...D-40	6-8	15	.....	.....	6-8	2	6-8	2	20	E.D.	S.	Series.....	
Moline-Knight	6-8	15	6-8	6H	6-8	2	6-8	4	20	E.S.	S.	Deflect.....	
Monroe.....	6-8	15	6-8	2H	6-8	2	6-8	2	20	E.S.	S.	D. Bulb....	
Moon.....	6-8	15	.....	.....	6-8	2	6-8	4	C.B.	E.S.	S.	Warner lens.	Dash lamp Ediswan D.
Murray....70T	6-8	18	6-8	4H	6-8	2	6-8	2	15	E.D.	.....	Warner lens.	Dash and tail Ediswan S.
													Fuses 5 amp. in dimmer
Nash.....	6-8	14	6-8	4H	6-8	2	6-8	2	C.B.	E.S.	S.	.....	Dash lamp double.
National.....	6-8	18	6-8	4H	6-8	2	6-8	2	.....	E.S.	S.	.....	Dash lamp double.
Nelson.....	12-16	30	12-16	6H	12-16	3	12-16	3	5-30	E.D.	D.	.....	Inspec. lamp, 12-16 v., 3 cp.
Oakland 34-B	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	S.	Resist.....	Dash lamp Ediswan S.
Oldsmobile..37	6-8	15	6-8	4H	6-8	2	6-8	2	.....	E.S.	S.	.....	Dash lamp Ediswan D.
Olympian.....	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	S.	Resist.....	
Overland.....	6-8	16	.....	.....	3-4	2	3-4	2	20	E.D.	S.	Series.....	Dash and tail Ediswan S.
Owen O-36....	28	21	28	4H	28	2	28	2	10	E.D.	D.	.....	
M-25....	14	21	14	4H	14	2	14	2	10	E.D.	.....	.....	Headlamps Ediswan S.
W-42....	28	21	28	4H	28	2	28	2	10	E.D.	D.	.....	
Paige.....	6-8	15	6-8	4H	6-8	2	6-8	2	20	E.S.	S.	.....	
Paterson...6-45	6-8	12	6-8	8H	3-4	2	3-4	.....	2	.....	.....	.....	Dash lamp Ediswan D.
Packard.....	6-8	24	6-8	6	6-8	2	6-8	4	10	E.S.	S.	Warner lens.	Aux. headlights, 6 cp.
Pan American..	6-8	15	.....	.....	6-8	2	6-8	2	20	E.S.	S.	D Bulb.....	Dash lamp Ediswan D.
Peerless.....56	6-8	15	6-8	4	6-8	2	6-8	2	10	E.S.	S.	Warner lens.	
Pierce-Arrow...	6-8	21	6-8	4	6-8	4	6-8	4	10	E.S.	S.	Sutterly....	
Pilot.....6-45	6-8	15	.....	.....	6-8	2	6-8	2	.....	E.S.	S.	Resist.....	
Regal.....J	6-8	21	.....	.....	6-8	4	6-8	2	.....	E.S.	S.	Resist.....	
Reo.....M	6-8	15	.....	.....	3-4	2	3-4	2	5	E.D.	D.	Series.....	
Reo.....T	6-8	15	.....	.....	3-4	2	3-4	2	5	.....	.....	Resist.....	
Saxon.....	6-8	12	.....	.....	6-8	2	6-8	2	15	E.S.	S.	Resist.....	
Scripps-Booth.	6-8	15	6-8	4H	6-8	2	6-8	2	.....	E.S.	S.	D Bulb....	Inspec. lamp, 6 v., 2 cp.
Simplex.....V	12-16	40	12-16	4H	6-8	2	6-8	2	10	E.S.	S.	.....	Tail lamp double.
Singer.....17	6-8	32	.....	.....	6-8	2	6-8	2	5	E.S.	S.	Warner lens.	Tail lamp double.
Standard.....G	6-8	18	6-8	4	6-8	2	6-8	2	15	E.S.	S.	Warner lens.	
Stanley Steamer	6-8	18	6-8	4H	6-8	2	6-8	2	.....	E.S.	S.	Controllite.	
Stearns SK8...	12-16	24	12-16	4H	12-16	2	12-16	2	20	E.S.	S.	.....	
SKL-4.....	12-16	18	12-16	4H	12-16	2	12-16	2	20	E.S.	S.	.....	
Stephens.....	6-8	21	6-8	4	6-8	2	6-8	2	.....	E.S.	S.	.....	
Studebaker....													
SH, EH, EG	6-8	12	.....	.....	6-8	2	6-8	2	10	E.S.	S.	Resist.....	
Stutz.....S	6-8	18	6-8	4H	6-8	2	6-8	4	.....	E.D.	D.	Warner lens.	
Templar.....	6-8	18	6-8	4	6-8	2	6-8	2	.....	E.S.	S.	Mac Beth lens	Spotlight, 36 cp.
Velie.....38-39	6-8	15	6-8	4	3-4	2	3-4	2	5	E.S.	S.	.....	Dash lamp double.
Westcott..S-18	6-8	15	6-8	4H	3-4	2	3-4	2	.....	E.S.	S.	Warner lens.	Dash lamp double.
White.....	12-16	25	12-16	4H	12-16	2	12-16	4	C.B.	E.D.	D.	Warner lens.	
Willys-Knight..	6-8	16	.....	.....	3-4	2	3-4	2	.....	E.D.	S.	Series.....	Tail lamp Ediswan S.
Winton...33-48	6-8	21	6-8	12	6-8	4	6-8	2	20	E.S.	S.	.....	
Woods.....54	60	25	30	8H	30	10	30	10	10	E.D.	D.	.....	

ABBREVIATIONS:—C.B.—Circuit Breaker. Candel.—Candelabra. D.—Double wiring system. E.D.—Ediswan double contact. E.S.—Ediswan single contact. H.—Small bulbs in headlamps for city driving. Resist.—Resistance. S.—Single wiring system. Series—Series connection.

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Trucks — MOTOR WORLD GUIDE — Trucks

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES: Kind	TIRES: Sizes in Ins. Front	TIRES: Sizes in Ins. Rear	MOTOR: Make Engine	MOTOR: No. of Crankshaft Bearings	MOTOR: Cylinders Bore and Stroke	MOTOR: S. A. E. Hp.	MOTOR: Cylinders Cast	MOTOR: Valves Placed	MOTOR: Spark Plug	MOTOR: Cooling—Water Circulation	MOTOR: IGNITION Type	MOTOR: IGNITION Make	MOTOR: IGNITION Spark Advance	MOTOR: IGNITION Electric System—Type and Make	MOTOR: GOVERNOR Type	MOTOR: GOVERNOR Drive	MOTOR: GOVERNOR Make	MOTOR: SPEED Motor in r.p.m.	MOTOR: SPEED Truck in m.p.h.	MOTOR: FUEL SYS. Carbureter Make	MOTOR: FUEL SYS. Fuel Feed	MOTOR: FUEL SYS. Tank Location	TRANSMISSION: CLUTCH Type	TRANSMISSION: CLUTCH Make	TRANSMISSION: GEARSET Make	TRANSMISSION: GEARSET Type	TRANSMISSION: GEARSET Location	TRANSMISSION: Speeds Tota	TRANSMISSION: Gear Reduction in High	TRANSMISSION: Rear Axle	TRANSMISSION: Springs, Make	TRANSMISSION: Universals, Make	TRANSMISSION: Final Drive	TRANSMISSION: Propulsion Taken By	TRANSMISSION: Torque Taken By	BRAKES: Hand Brake	BRAKES: Foot Brake	Steering Gear
A & B.....3T	3	$4500	144	s.	48x3½d	48x3½d	own...	3	4-5½x4½	42.8	2	l..	..	p.	d.	Bosch..	h.	G-E.....	.....	.....	None..	1200	20	Schblr..	g.	s.	...	none...	own....	elect	amid..	2	28.0	own...	Perf...	Franck.	int-g..	rad-rd.	rad-rd.	ext-r-w.	ex-f-w..	Gemr..
A & B.....5T	5	4750	144	s.	48x3½d	48x5d	own...	3	4-5½x4½	42.8	2	l..	..	p.	d.	Bosch..	h.	G-E.....	.....	.....	None..	1200	18	Schblr..	g.	s.	...	none...	own....	elect	amid..	2	28.0	own...	Perf...	Franck.	int-g..	rad-rd.	rad-rd.	ext-r-w.	ex-f-w..	Gemr..
Acason.....B	1½	2400	150	s.	36x3½	36x5	Wauk.	3	4-3½x5½	22.5	2	..	..	p.	s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1500	18	Stmbg..	v.	s.	dp.	B&Bek.	Covert.	selec	unt-m.	3	9.2	Timkn.	Dtrt...	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Acason.....H	2	2750	150	s.	36x4	36x7	Wauk.	3	4-4½x5½	29.0	2	l..	..	p.	s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1200	15	Stmbg..	v.	s.	dd.	Muncie	Muncie	selec	unt-m.	4	7.75	Timkn.	Dtrt...	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Acason.....L	3½	3600	172	s.	36x5	36x5d	Wauk.	3	4-4½x6½	29.0	2	l..	..	p.	s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1200	12	Stmbg..	v.	s.	dd.	Muncie	Muncie	selec	unt-m.	4	10½	Timkn.	Dtrt...	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Acason.....M	5	4600	{172 {187	s.	36x6	40x6d	Wauk.	3	4-4½x6½	36.1	2	..	..	p.	s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1000	10	Stmbg..	v.	s.	dp.	B&Bek.	Cotta..	selec	unt-m.	3	11½	Timkn.	Dtrt...	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Acason..Light Tractor	6	2850	114	s.	36x4	36x7	Wauk.	3	4-4½x5½	29.0	2	l..	..	p.	s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1200	15	Stmbg..	v.	s.	dd.	Muncie	Muncie	selec	unt-m.	4	9½	Timkn.	Dtrt...	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Acason..Heavy Tractor	10	4200	130	s.	36x5	36x5d	Wauk.	3	4-4½x6½	36.1	2	l..	..	p.	s.	Eismn..	h.	L*.....	cnt..	motor.	Wauk..	1000	10	Stmbg..	v.	s.	dp.	B&Bek.	Cotta..	selec	unt-m.	3	10½	Timkn.	Dtrt...	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Acme.....B	1	1900	130	s.	34x3	34x4	Cont..	3	4-3½x5	22.5	4	l..	..	t.	s.	Eismn..	h.	l, G&D...	cnt.	.....	Pierce..	1700	20	Rayfld.	v.	s..	dp.	B&Bek.	Cotta..	selec	unt-m.	3	7.75	Timkn.	Dtrt...	Blood..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Acme.....A	2	2600	148	s.	36x4	36x6	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	s.	Eismn..	h.	l, G&D...	cnt.	.....	Pierce..	1350	15	Rayfld.	v.	s..	dp.	B&Bek.	Cotta..	selec	unt-m.	3	8.50	Timkn.	Dtrt...	Blood..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Acme.....C	3½	3500	168	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Eismn..	h.	l*.....	cnt.	.....	Pierce..	1200	12	Rayfld.	v.	s..	dp.	B&Bek.	Cotta..	selec	amid..	3	12.0	Timkn.	Dtrt...	Blood..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Acme.....D	4	3900	168	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Eismn..	h.	.....	cnt.	.....	Pierce..	1200	12	Rayfld.	v.	s.	dp.	B&Bek.	Cotta..	selec	amid..	3	13.6	Timkn.	Dtrt...	Blood..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Acme.....E	5	4250	144*	s.	36x6	36x6d	Wauk.	3	4-4½x6½	32.4	2	l..	..	p.	s.	Eismn..	h.	l*.....	cnt.	.....	Pierce..	870	10	Zenith..	g.	s.	c..	Wabash	own....	id-c.	amid..	3	9.3	Kestone	Sheldon	Ther...	worm	sub-f.	sub-f.	int-r-w.	ext-sht.	Lvine..
American.....30	3½	3450	158	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	..	..	p.	s.	Eismn..	h.	l*.....	cnt.	motor.	Pierce..	1143	14	Stmbg..	g.	..	dp.	B&Bek.	Covert	selec	amid..	4	8.75	Shldn..	Perf...	Evans..	worm	sprgs.	sprgs.	int-r-w	int-r-w.	Lvine..
American.....C	2	2850	121*	s.	34x4	34x3½d	Wauk.	3	4-4½x5½	29.0	2	l..	..	p.	d.	Bosch..	f..	Eismn....	cnt.	motor.	Wauk..	1060	14	Zenith..	g.	s.	c..	Wabash	own....	id-c.	amid..	3	7.6	Kestone	Sheldon	Ther...	worm	sub-f.	sub-f..	int-r-w	ext-sht.	Lvine..
American.....D	3	3250	121*	s.	36x5d	36x5d	Wauk.	3	4-4½x5½	29.0	2	l..	..	p.	d.	Bosch..	f..	Eismn....	cnt.	motor.	Wauk..	970	12	Zenith..	g.	s.	c..	Wabash	own....	id-c.	amid..	3	8.6	Kestone	Sheldon	Ther...	worm	sub-f.	sub-f..	int-r-w	ext-sht.	Lvine..
American.....F	5	4250	144*	s.	36x6	36x6d	Wauk.	3	4-4½x6½	32.4	2	l..	..	p.	d.	Bosch..	a.	Eismn....	cnt.	motor.	Wauk..	870	10	Zenith..	g.	s.	c..	Wabash	own....	id-c.	amid..	3	9.3	Kestone	Sheldon	Ther...	worm	sub-f.	sub-f.	int-r-w	ext-sht.	Lvine..
Armleder*.....HW	2	2900	148	s.	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	s.	Eismn..	h.	l*.....	cnt.	shaft.	Pierce..	1200	15	Schblr..	g.	s.	dp.	B&Bek.	Covert.	selec	unt-m.	3	8.5	Timkn.	Mthr...	Spicer..	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Ross...
Armleder.....KW	3½	3850	156	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Eismn..	h.	l*.....	cnt.	shaft.	Pierce..	1000	12	Schblr..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.75	Timkn.	Mthr...	Spicer..	worm	rad-rd.	sprgs.	int-r-w	ext-sht.	Gemr..
Atlas.....18	½	985	118	p.	32x4	32x4	Lycmg	2	4-3½x5	19.6	4	l..	..	t.	s.	Remy..	h	Remy....	....	.....	None..	1600	30	Zenith..	g.	s.	d..	B&Bek.	Covert	selec	unt-m.	3	4.7	Hess...	Rolnd..	Arvac..	sp-bv	sprgs..	sprgs.	ext-r-w.	int-r-w.	Lvine..
Atterbury.....7R	1½	2475	140½	s.	36x3½	36x5	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	s.	Eismn..	f..	.....	cnt.	motor.	Pierce..	1200	15	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	8.5	Timkn.	Sp-Prch	Spicer..	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Atterbury.....7C	2	{2875 {2975	153½ 171½	s.	36x3½	36x4d	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	s.	Eismn..	f..	.....	cnt.	motor.	Pierce..	1200	15	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	8.5	Timkn.	Sp-Prch	Spicer..	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Atterbury.....7D	3½	{3775 {3875	167½ 192	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	4	l..	..	p.	d.	Eismn..	h.	.....	cnt.	motor.	Pierce..	1125	13	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	10.3	Timkn.	Sp-Prch	Spicer..	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Gemr..
Autocar.....21F	2	2050	97	s*	34x4*	34x5*	own...	2	2-4½x4½	18.1	..	l..	..	p.	s.	Bosch*	f..	.....	.....	.....	.....	.....	...	Stmbg..	..	s.	dp.	own....	.....	prog	amid..	3	7.1	own....	.....	.....	d-red..	sprgs.	sprgs.	int-r-w.	ext-r-w.	.....
Available.....1	1	1775	132	s	36x3½	36x5	Cont..	3	4-3½x5	22.5	4	l..	..	t.	s.	Bosch..	f..	None....	none	.....	.....	.....	...	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn.	Tuthill.	Spicer..	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Available.....2	2	2450	150	s	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	s.	Bosch..	f..	None....	none	.....	.....	.....	...	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.7	Timkn.	Tuthill.	Spicer..	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Available.....3	3½	3450	150	s	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Bosch..	f..	None....	cnt.	motor.	Pierce..	1214	14	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	10.3	Timkn.	Tuthill.	Spicer..	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Available.....5	5	4500	168	s-	36x6	40x6d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Bosch..	f..	None....	cnt.	motor.	Pierce..	1175	12	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	11.7	Timkn.	Tuthill.	Spicer..	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Avery.....B	2	2700	128	s.	36x4	36x3½d	.....	..	4-4½x5	36.1	1	l..	..	p.	d.	Eismn..	a.	.....	cnt.	motor.	.....	1200	14½	Rayfld.	....	....	dd.	.....	.....	selec	unt-js.	3	3.5	.....	.....	.....	d-chn.	.....	rad-rd.	.....	.....	.....
Avery.....B	3	3200	128	s.	38x5	38x4d	.....	..	4-4½x5	36.1	1	l..	..	p.	d.	Eismn..	a.	.....	cnt.	motor.	.....	1200	13	Rayfld.	....	....	dp.	.....	.....	selec	unt-js.	3	3.5	.....	.....	.....	d-chn.	.....	rad-rd.	.....	.....	.....
Avery.....A	3	2500	140	s.	38x5	38x4d	.....	..	4-4½x5	36.1	1	l..	..	p.	d.	Eismn..	a.	.....	cnt.	motor.	.....	1200	12	Rayfld.	....	....	dd.	.....	.....	selec	unt-js.	3	3.5	.....	.....	.....	d-chn.	.....	rad-rd.	.....	.....	.....
Barber Tractor.....	6	2500	84	s.	34x3½	34x7	Buda..	..	4-4½x5½	29.0	4	l..	..	p.	s.	Bosch..	h.	.....	.....	.....	.....	.....	13	Stmbg..	..	s.	d..	Fuller..	Fuller..	selec	.....	..	..	own..	.....	.....	worm	sprgs..	sprgs.	int-r-w.	ext-r-w.	Ross...
Beck.....A	1	1180	124	s.	34x3	34x4	Cont..	..	4-3½x5	19.6	2	l..	..	p.	s.	Bosch..	f..	l Vesta...	cnt.	motor.	Pierce..	2000	18	Stmbg..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	6.0	Clark..	Hig....	Blood..	int-g..	sprgs.	sprgs.	ext-r-w.	int-r-w.	Lvine..
Beck.....B	1½	1440	124	s.	34x3½	34x5	Cont..	..	4-3½x5	22.5	4	l..	..	p.	s.	Bosch..	f..	l, Vesta...	cnt.	motor.	Pierce..	2000	18	Stmbg..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	6.0	Clark..	Hig....	Blood..	int-g..	sprgs.	sprgs	ext-r-w.	int-r-w.	Lvine..
Beck.....C	2	1860	144	s.	36x4½	34x6	Cont..	..	4-4½x5½	28.9	2	l..	..	p.	s.	Bosch..	f..	l, Vesta...	cnt.	motor.	Pierce..	1500	12	Stmbg..	g.	..	dd.	Fuller..	Fuller..	selec	unt-m.	3	9.0	Clark..	Hig....	Blood..	int-g..	sprgs.	sprgs.	ext-r-w.	int-r-w.	Lvine..
Beech Creek.....3A	3	3850	132	s.	36x6	36x6	Wauk.	3	4-4½x5½	29.0	2	l..	..	p.	s.	Eismn..	h.	.....	cnt.	motor.	Wauk..	1000	12	King....	v.	s.	dp.	B-Bek..	own....	selec	amid..	6	8.0	own....	.....	.....	bevl-4.	rad-rd.	sprgs.	ext-r-w.	ext-sht.	own....
Bessemer.....G	1	1350	124	s	34x3	34x4	Cont..	3	4-3½x5	19.6	4	l.	..	t.	s.	Dixie..	h.	.....	.....	.....	none...	1350	...	Zenith..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.0	Torbn..	Perf...	Blood..	int-g..	sprgs.	sprgs.	int-r-w.	ext-r-w.	Ross...
Bessemer.....J	2	*2200	158*	s.	36x4	36x4d	Cont..	3	4-4½x5½	27.2	4	l.	..	p.	s.	Dixie..	h.	.....	cnt.	motor.	Pierce..	1250	15	Rayfld.	g.	s.	c..	Hart...	B-Lipe.	selec	amid..	4	8.0	Torbn.	Perf...	Spicer..	int-g..	rad-rd.	sprgs.	int-r-w.	ext-r-w.	Ross...
Bessemer.....K	3½	3450	150	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Dixie..	h.	.....	cnt.	motor.	Pierce..	1250	12	Rayfld.	g.	s.	c..	Hart...	B-Lipe.	selec	amid..	4	10.3	Torbn.	Perf...	Spicer..	int-g..	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Bethlehem.....	1½	1295	126	s.	34x3	34x4	G.B.S.	3	4-3½x4½	22.5	4	l..	..	t.	s.	Brlng..	h.	.....	cnt.	d-shft.	Pierce..	1300	18	Schblr..	g.	s.	d..	Dtroit..	Dtroit..	selec	unt-m.	3	7.7	Russl..	Shel...	Univ...	int-g..	sprgs.	sprgs.	int-r-w.	ext-r-w.	Lvine..
Bethlehem.....	2½	1915	144	s.	34x4	34x6	NoAm	3	4-4 x4½	25.6	2	l.	..	t.	s.	Brlng..	h.	.....	cnt.	d-shft.	Pierce.	1100	15	Schblr..	g.	s.	d..	Dtroit..	Dtroit..	selec	unt-m.	3	8.4	Russl..	Shel...	Univ...	int-g..	sprgs.	sprgs.	int-r-w.	ext-r-w.	Lvine..
Bethlehem....Tractor	5	2705	120	s.	34x4	34x7	NoAm	3	4-4 x4½	25.6	2	l.	..	t.	s.	Brlng..	h.	.....	cnt.	d-shft.	Pierce.	1100	15	Schblr..	g.	s.	d..	Dtroit..	Dtroit..	selec	unt-m.	3	9.4	Russl..	Shel...	Univ...	int-g..	sprgs.	sprgs.	int-r-w.	ext-r-w.	Lvine..
Bourne Magnetic..VM	2	3500	143	s.	36x4	36x8	Herel.	5	4-4 x5½	25.6	1	l..	..	p.	s.	Eismn..	f..	s, l Ents..	cnt.	motor.	Simplx	1280	15	Zenith..	g.	s.	...	Ents...	Ents...	....	unt-m.	..	8.50	Timkn.	Mthr..	Blood..	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Bourne Magnetic..XM	3½	4200	160	s.	36x5	36x10	Herel.	5	4-4½x5½	29.0	1	l..	..	p.	s.	Eismn..	f..	s, l Ents..	cnt.	motor.	Simplx	1100	12	Zenith..	g.	s.	...	Ents...	Ents...	....	unt-m.	..	10.3	Timkn.	Mthr...	Blood..	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Brinton.....H	1	1250	125	p.	33x4½	33x4½	Wis...	2	4-3½x5	16.9	4	l..	..	p.	s.	Bosch..	f..	l.....	.....	.....	None...	.....	...	.....	h.	s.	dd.	.....	.....	selec	unt-m.	3	6.2	.....	.....	.....	worm	.....	sprgs.	int-f-w	int-r-w.	.....
Brinton.....F	2½	2650	140	s.	36x4*	36x6*	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	s.	Bosch..	f..	l.....	cnt.	motor.	Pierce.	.....	...	.....	g.	s.	dd.	.....	.....	selec	unt-m.	3	7.75	.....	.....	own....	worm	sprgs.	sprgs.	ext-r-w.	int-r-w.	.....
Briscoe.....4-24	½	825	104	p.	31x4	31x4	own...	2	4-3 1/8x5½	16.3	4	l..	..	t.	s.	Conn...	h.	s, l A-Lite.	.....	.....	.....	.....	...	DBuick	g.	d.	c..	own....	own....	selec	unt-x..	3	4.2	own....	.....	own..	bevel..	t-arm	t-arm	int-r-w	ext-r-w.	own....
Briscoe.....T-24	1	1000	132	pe	31x4	34x3½	own...	2	4-3 1/8x5½	16.3	4	l..	..	t.	s.	Conn...	h.	s, l A-Lite.	.....	.....	.....	.....	...	DBuick	g.	d.	c..	own....	own....	selec	unt-j-s	3	9.0	own....	.....	own..	chain..	rad-rd.	tor-a.	int-r-w.	ext-j-s.	own....
Brockway.....J-2	1½	2450	140	s.	36x3½	36x5	Cont..	3	4-3½x5	22.5	4	l..	..	t.	s.	Eismn..	f..	.....	suc.	motor.	Mnrch.	1200	15	Schblr..	g.	s.	c..	Hart...	B-Lipe.	selec	amid..	3	8.6	Sheldon	Merrill.	Spicer..	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Brockway.....K-3	2	2850	148	s.	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	l..	..	p.	s.	Eismn..	f..	.....	suc.	motor.	Mnrch.	1200	15	Schblr..	g.	s.	c..	Hart...	B-Lipe.	selec	amid..	3	8.5	Timkn.	Merrill.	Spicer..	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Gemr..
Brockway.....R	3½	3750	164	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l..	..	p.	s.	Eismn..	h.	l.....	suc.	motor.	Mnrch.	1100	12	Schblr..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	3	10.5	Timkn.	Merrill.	Spicer..	worm	sprgs..	sprgs..	int-r-w.	ext-r-w.	Gemr..
Buick.....	½	790	106	..	31x4	31x4	own...	..	4-3½x4½	18.2	4	l..	..	p.	s.	Delco..	h.	s, l Delco.	....	.....	.....	.....	...	Marvel.	v.	..	dd.	own....	own....	selec	unt-m.	..	4.08	Timkn.	.....	.....	bevel.	.....	.....	int-r-w	ext-r-w.	.....
Chase.....A	1	1725	138	s.	36x3½	36x5	Wauk.	3	4-3½x5½	19.6	4	..	..	p.	s.	Bosch..	f..	.....	cnt.	motor.	Mnrch.	1200	18	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.2	Sheldon	Perf...	.....	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Chase.....C	1½	2025	149	s.	36x3½	36x6	Wauk.	3	4-3½x5½	19.6	4	..	..	p.	s.	Bosch..	f..	.....	suc.	motor.	Mnrch.	1000	16	Stmbg..	g.	..	dp.	B&Bek.	Cotta..	selec	unt-m.	3	8.6	Sheldon	Perf...	.....	worm	sprgs..	sprgs..	int-r-w.	ext-r-w.	Lvine..
Chase.....B	2½	2475	160	s.	36x4	36x4d	Buda..	3	4-4½x5½	27 2	4	..	..	p.	s.	Bosch..	f..	.....	suc.	motor.	Mnrch.	1000	14	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.66	Sheldon	Perf...	.....	worm	sprgs..	sprgs..	int-r-w.	ext-r-w.	Lvine..
Chase.....X	3	2800	160	s.	36x4	36x5d	Buda..	3	4-4½x5½	27.2	4	..	..	p.	s.	Bosch..	f..	.....	suc.	motor.	Mnrch.	1000	12	Stmbg..	g.	..	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	9.25	Slsby..	Perf...	.....	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine..
Chase.....O	3½	3600	175	s.	36x5	36x5d	Cont*.	3	4-4½x5½	32.4	2	l..	..	p.	s.	Bosch..	h.	s, l Dynto..	suc..	motor.	Mnrch.	1000	12	Stmbg..	g.	s.	d..	B-Lipe.	B-Lipe.	selec	unt-m	4	8.75	Sheldon	Perf...	.....	worm	sprgs.	t-arm	ext-r-w	ext-r-w	Lvine..
Chevrolet.....	1	1125	125	pe	31x4	32x4	.....	3	4-3½x5½	21.7	4	l..	..	..	s.	Remy..	..	s, l A-Lite.	suc..	.....	Murch	....	25	Zenith..	g.	s.	c..	.....	.....	selec	unt-m.	3	7.0	.....	.....	.....	worm	sprgs.	sprgs.	.....	.....	.....

*Detroit

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Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Ins.	Kind	Sizes in Ins. Front	Sizes in Ins. Rear	Make Engine	No. of Crankshaft Bearings	Cylinders Bore and Stroke	S. A. E. Hp.	Cylinders Cast	Valves Placed	Spark Plug	Cooling—Water Circulation	IGNITION Type	IGNITION Make	IGNITION Spark Advance	Electric System—Type and Make	GOVERNOR Type	GOVERNOR Drive	GOVERNOR Make	SPEED Motor in r. p. m.	SPEED Truck in m.p.h.	FUEL SYS. Carburetor Make	FUEL SYS. Fuel Feed	FUEL SYS. Tank Location	CLUTCH Type	CLUTCH Make	GEARSET Make	GEARSET Type	GEARSET Location	GEARSET Speeds	Total Gear Reduction in High	Rear Axle	Springs, Make	Universals, Make	Final Drive	Propulsion Taken By	Torque Taken By	Hand Brake	Foot Brake	Steering Gear
Garford	1	2100	128	ps	34x4½d	36x4	Buda	3	4-3½x5½	22.5	4	L.			p.	s.	Dixie	h.	s,l West	suc.	motor.	Mnrch.	1300	18	Rayfld	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.8		Perf	Spicer	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Garford	1½	2500	144	s.	36x3½	36x5	Buda	3	4-3½x5½	22.5	4	L.			p.	s.	Dixie	h.	s,l West	cnt.	motor.	Duplex.	1270	15	Rayfld	g.	s.	dd	B-Lipe.	own	selec	amid.	4	8.5		Perf	Spicer	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Garford	2	3000	144	s.	36x4	36x7	Buda	3	4-4½x5½	29.0	4	L.			p.	s.	Dixie	h.	s,l West	cnt.	motor.	Duplex.	1190	15	Rayfld	g.	s.	dd.	B-Lipe.	own	selec	amid.	4	8.5		Perf	Spicer	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Garford	77-B	3½	3900	128*	s.	36x5	40x5d	Wis	4	4-4½x6	29.0	4	L.		p.	d.	Eismn	h.	s,l West	cnt.	motor.	own	1050	12	Rayfld	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	10.3		Perf	Spicer	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Garford	68	5	4700	128*	s.	36x6	40x6d	Wis	3	4-4½x5½	36.1	2	t.		p.	d.	Eismn	h.	West	cnt	motor.	own	1050	11	Rayfld	g.	s.	dd.	B-Lipe.	own	selec	unt-j.	4	11.4		Perf	Spicer	d-chn	rad-rd.	sprgs.	int-r-w.	ext-r-w.	Ross
Garford	69	6	4900	128*	s.	36x6	40x7d	Wis	3	4-5-7/16x5½	41.6	2	t.		p.	d.	E i mn	h.	West	cnt.	motor.	own	1050	10	Rayfld	g.	s.	dd.	B-Lipe.	own	selec	unt-j.	4	12.3		Perf	Spicer	d-chn	rad-rd.		int-r-w.	ext-sht.	Ross
Garford Tractor		4½	3100	116	s.	36x4	36x7	Buda	3	4-4½x5½	29.0	4	L.		p.	s.	Dixie	h.	West	cnt		Duplex.	1190		Rayfld	g.	s.	dd.	B-Lipe.	own	selec	amid.	4	9.25	Timkn	Perf	Spicer	d-chn	rad-rd.		int-r-w.	int-sht.	Ross
Garford Tractor		7	4000	105	s.	36x5	40x5d	Wis	3	4-4½x5½	36.1	2	t.		p.	d.	Eismn	h.	West	cnt		own	1050		Rayfld	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	11.1	Timkn	Perf	Spicer	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Garford Tractor		10	4800	102	s.	36x6	40x6d	Wis	3	4-5-7/16x5½	41.6	2	t.		p.	d.	Eismn	h.	West	cnt		own	1050		Rayfld	g.	s.	dd.	B-Lipe.	own	selec	unt-j.	4	12.3	own	Perf	Spicer	d-chn	rad-rd.	sprgs.	int-r-w.	ext-sht.	Ross
Gary	F	1		130	s.	36x3½	36x4	Cont.	3	4-3½x5	22.5	4	L.			t.	s.	Eismn	h.	Vesta	cnt.	motor.	Pierce.	1275	15	Stmbg	g.	s.	dd.	Fuller	Fuller	selec	unt-m.	3	7.8	Sheldon	Tuthill	Blood	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Gary	G	1½		144	s.	36x3½	36x5	Buda	3	4-4½x5½	28.9	4	L.			p.	s.	Eismn	h.	Vesta	cnt	motor.	Simplex	1275	15	Stmbg	g.	s.	dd.	Fuller	Fuller	selec	unt-m.	3	7.75	Sheldon	Tuthill	Blood	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross*
Gary	H	2		156	s.	36x4	36x6	Buda	3	4-4½x5½	28.9	4	L.			p.	s.	Eismn	h.	Vesta	cnt	motor.	Simplex	1275	15	Stmbg	g.	s.	dd.	Fuller	Fuller	selec	unt-m.	3	8.75	Sheldon	Tuthill	Hart	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross*
Gary	HU	2½		162	s.	36x4	36x7	Buda	3	4-4½x5½	28.9	4	L.			p.	s.	Eismn	h.	Vesta	cnt	motor.	Simplex	1275	15	Stmbg	g.	s.	dd.	Fuller	Fuller	selec	unt-m.	3	8.75	Sheldon	Tuthill	Hart	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross*
Gary	K	3½		162	s.	36x5	36x5d	Buda	3	4-4½x6	32.4	4	L.			p.	s.	Eismn	a.	Vesta	cnt	duplex	Duplex.	1200	12	Stmbg	g.	s.	dd.	Warner	Warner	selec	amid.	4	8.75	Sheldon	Tuthill	Blood	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross*
G. A. Schacht		2	2950	144	s.	36x3½	36x6	Buda	3	4-4½x5½	29.0	4	L.			p.	s.	Bosch	h.		cnt	motor.	own	900	16	Schblr	g.	s.	c.	Hart	own	selec	amid.	3	7.75	own	Natl	Blood	worm	rad-rd.	t-arm	int-r-w.	ext-r-w.	Ross*
G. A. Schacht		2½	3300	156*	s.	36x4	36x4d	Buda	3	4-4½x5½	29.0	4	L.			p.	s.	Bosch	h.		cnt	motor.	own	900	14	Schblr	g.	s.	c.	Hart	own	selec	amid.	3	8.5	own	Natl	Blood	worm	rad-rd.	t-arm	int-r-w.	ext-r-w.	Barns
G. A. Schacht		3½	3700	168*	s.	36x5	36x5d	Buda	3	4-4½x5½	29.0	4	L.			p.	s.	Bosch	h.		cnt	motor.	own	900	12	Schblr	g.	s.	c.	Hart	own	selec	amid.	3	10.3	own	Natl	Blood	worm	rad-rd.	t-arm	int-r-w.	ext-r-w.	Barns
G. A. Schacht		5	4700	168	..	36x5	40x6d	Buda										Bosch	h.		cnt	motor.	own		10	Schblr				Hart	own	selec	amid.		14.0	own	Natl	Blood	worm	rad-rd.	t-arm	int-r-w.	ext-r-w.	Barns
Gem		½	675		p.	31x4	31x4	GB&S	3	4-3½x4½	22.5	4	L.			t.	s.	Conn	h.	s,lDynto						Carter		s.	dd.	GB&S	G-Lees	selec	unt-m.	3	4-1	W-W			bevel	sprgs.	sprgs.	int-r-w.	ext-r-w.	Fostr
Geneva		1		96	s.	34x2	36x2½	Beavr		2-5½x4½	22.1	1	L.				s.	Simms	f.	None						Schblr	g.	s.	dp	Warner		plan	unt-j.	2	4.0	Sheldon	Sheldon	Spicer	d-chn	rad-rd.	rad-rd.	int-r-w.	int-r-w.	
Globe		A	1	1490	132	s.	34x3½	34x4	Cont.	3	4-3½x5	19.6	4	L.			p.	s.	Eismn	h.	None	cnt	motor.	Pierce.	1385	20	Master	v.	s.	dd.	B&Bek.	Covert	selec	unt-m.	3	7.0	Clark	Sheldon	Univ	int-g.	sprgs.	sprgs.	int-r-w.	ext-r-w.	Lvine
Globe		B	1½	1850	144	s.	36x3½	36x5	Cont.	3	4-3½x5½	22.5	4	L.			p.	s.	Eismn	f.	None	cnt	motor.	Pierce.	1300	18	Master	v.	s.	dd.	B&Bek.	Covert	selec	unt-m.	3	7.5	Russl	Sheldon	Univ	int-g.	sprgs.	sprgs.	int-r-w.	ext-r-w.	Lvine
Globe		C	2	2190	154	s.	36x4	36x6	Cont.	3	4-4½x5½	27.2	4	L.				s.	Eismn	f.	None	cnt	motor.	Pierce.	1250	16	Master	v.	s.	dd.	B&Bek.	Covert	selec	unt-m.	3	8.0	Clark	Sheldon	Univ	int-g.	sprgs.	sprgs.	int-r-w.	ext-r-w.	Lvine
G.M.C		16	½	1495	132	p.	35x5	35x5	Cont.	3	4-3½x5	22.5	4	L.			p.	s.	Eismn	h.		suc	motor.	March	1150	20	Marvel	g.	s.	dd.	own	own	selec	unt-m.	3	6.0	W Mott	Dtrt	Univ	bevel	rad-rd.	sprgs.	int-r-w.	ext-r-w.	Jacox
G.M.C		21	1	1950	136	s.	34x3½	34x5	Cont.	3	4-3½x5	22.5	4	L.			p.	s.	Eismn	h.		suc	motor.	Mnrch	1380	18	Marvel	g.	s.	dd.	own	own	selec	unt-m.	3	7.7	Timkn	Dtrt	Univ	worm	rad-rd.	sprgs.	int-r-w.	ext-r-w.	Lvine
G.M.C		31	1½	2350	144*	s.	36x3½	36x5	Cont.	3	4-3½x5	22.5	4	L.			p.	s.	Eismn	h.		suc	motor.	Mnrch	1300	15	Marvel	g.	s.	dd.	own	own	selec	unt-m.	4	9.2	TDB	Dtrt	Univ	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Lvine
G.M.C		41	2	2800	158*	s.	36x4	36x4d	Cont.	3	4-4½x5½	27.2	4	L.			p.	s.	Eismn	h.		suc	motor.	Mnrch	1200	14	Marvel	g.	s.	dd.	own	own	selec	unt-m.	4	9.2	TDB	Dtrt	Univ	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Lvine
G.M.C		71	3½	3900	163*	s.	36x5	40x5d	Cont.	3	4-4½x5½	32.4	2	L.			p.	s.	Eismn	h.		suc	motor	Mnrch	1210	12	Marvel	g.	s.	dd.	own	own	selec	amid.	4	12.0	TDB	Dtrt	Univ	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Lvine
G.M.C		101	5	4500	163*	s.	36x6	40x6d	Cont.	3	4-4½x5½	32.4	2	L.			p.	s.	Eismn	h.		suc	motor.	Mnrch	1210	10	Marvel	g.	s.	dd.	own	own	selec	amid.	4	13.6	TDB	Dtrt	Univ	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Lvine
Gramm-Bernstein			1½	2450	130*	s.	34x3½	36x5	Wauk.	3	4-3½x5½	22.5	4	L.			p.	s.	Eismn	h.	s,l* West	cnt	motor.	Wauk	1200	17	Zenith	g.	s.	dd.	own	own	id-c.	amid.	3	7.75	Sheldon	Sheldon		worm	sprgs.	sprgs.	int-r-w.	ext-r-w.	Ross
Gramm-Bernstein			2	2750	146	s.	34x4	34x3½d	Wauk.	3	4-3½x5½	22.5	4	L.			p.	s.	Eismn	h.	s,l* West	cnt	motor.	Wauk	1200	16	Zenith	g.	s.	dd.	own	own	id-c.	amid.	3	8.6	Sheldon	Sheldon		worm	sprgs.	sprgs.	int-r-w.	ext-r-w.	Ross
Gramm-Bernstein			2½	3300	156	s.	36x4	36x4d	Wauk.	3	4-4½x5½	29.0	2	L.			p.	d.	Eismn	h.	s,l* West	cnt	motor.	Wauk	1150	16	Zenith	g.	s.	dd.	own	own	id-c.	amid.	3	7.7	Sheldon	Sheldon		worm	sprgs.	sprgs.	int-r-w.	ext-r-w.	Ross
Gramm-Bernstein			3½	4000	158*	s.	36x5	40x5d	Wauk.	3	4-4½x5½	32.4	2	L.			p.	d.	Eismn	h.	s,l* West	cnt	motor	Wauk	1100	16	Zenith	g.	s.	dd.	own	own	id-c.	amid.	4	8.7	Sheldon	Sheldon		worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Gramm-Bernstein			5	5000	168*	s.	36x6	40x6d	Wauk.	3	4-4½x6½	36.1	2	L.			p.	d.	Eismn	h.	s,l* West	cnt	motor	Wauk.	1050	11	Zenith	g.	s.	e.	own	own	id-c.	amid.	4	10.2	Sheldon	Sheldon		worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Grant		15	2	1850	124	s.	34x4	34x6	Cont.	3	4-3½x5	22.5	4	L.			t.	s.	Dixie		s s Remy	cnt.	d-shft.	Pierce.	1400	14	Stewart	g.	s.	dp.	B&Bek.	G-Lees	selec	unt-m.	3	9.0	Torbn	Cooper	Arvac	int-g.	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Grant		16		1950	(140	..	34x4½*																																			
Grant		10	1½	1540	124	ps	34x4½	34x5	Cont.	3	4-3½x5	22.5	4	L.			t.	s.	Dixie		s,l Remy	cnt	d-shft.	Pierce.	1400	20	Stewart	g.	s.	dp.	B&Bek.	G-Lees	selec	unt-m.	3	7.0	Torbn	Cooper	Arvac	int-g.	sprgs.	sprgs.	int-r-w.	ext-r-w.	Lvine
Grant		11		1635	140	..	34x3½*																																			
Grant		12	½	1075	115	p.	32x4	32x4	HerSp	2	4-3½x5	16.9	4	L.			t.	s.	Dixie		s, l Bijur				none			Carter	v.	s.	dp.	B&Bek.	G.Lees	selec	unt-m.	3	5.3	Torbn	Cooper	Arvac	int-g.	sprgs.	sprgs.	int-r-w.	ext-r-w.	Ditwlr
Hahn			½	1100	120*	s.	30x3	36x3½	Cont.	3	4-3½x5	19.6	4	L.			p.	d.	Eismn	h.		cnt	motor	Pierce.	1175	18	Stmbg	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Torbn								
Hahn			1½	1950	144*	s.	30x3½	36x3½d	Cont.		4-4½x5½	27.2							Bosch	h.		cnt	motor	Pierce.	980	15	Stmbg	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn		Spicer	worm	rad-rd.	t-arm			Ross
Hahn			2½	2900	148*	s.	36x5	36x5d	Cont.		4-4½x5½	32.4																	B-Lipe	B-Lipe					Timkn		Spicer						Ross
Hall			2	2350	144	s.	36x4	36x4d	Cont.	3	4-4½x5½	27.2	4	L.			p.	s.	Bosch*	f.	l, Bosch	suc	motor	Mnrch	1250	18	Zenith	g.	s.	dd.	B&Bek.	Covert	selec	unt-m.	3	9.2	Timkn	Dtrt	K-B	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Gemr
Hall			3½	3250	144	s.	36x5	36x5d	Cont.	3	4-4½x5½	32.4	2	L.			p.	s.	Bosch*	f.	l, Bosch	suc*	motor	Mnrch*	1200	15	Zenith	g.	s.	dd.	B&Bek.	B-Lipe	selec	unt-m.	3	10.5	Timkn	Dtrt	K-B	worm*	sprgs*	sprgs*	int-r-w.	int-r-w.	Gemr
Hall			{5 / 7	4200	144	s.	36x5	40x6d	Cont.	3	4-4½x5½	32.4	2	L.			p.	s.	Bosch*	f.	l, Bosch*	suc*	motor	Mnrch*	1200	12	Zenith	g.		dd.	B-Lipe.	B-Lipe	selec	unt-m.	4	12.0	Timkn	Dtrt	K-B	worm / d-chn	sprgs. / rad-rd.	sprgs.	int-r-w.	{int-r-w / ext-j.s.	Gemr
Harvey	WFA		2½	2850	150	s.	36x4	36x7	Buda	3	4-4½x5½	29.0	4	L.			p.	s.	Eismn	a.	s, l West	cnt.	motor.	Duplex	1000	16	Stmbg	g.	s.	dp.	B&Bek.	B-Lipe	selec	amid.	4	7.75	Sheldon	Sheldon	Spicer	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Harvey	WHA		3½	3850	160*	s.	36x5	36x5d	Buda	3	4-4½x6	32.4	4	L.			p.	s.	Eismn	a.	s, l West	cnt.	motor.	Duplex	1000	13	Stmbg	g.	s.	dp.	B&Bek.	B-Lipe	selec	amid.	4	8.75	Sheldon	Sheldon	Spicer	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Harvey	WKA		5	4600	160*	s.	36x6	40x6d	Buda	3	4-4½x6	32.4	4	L.			p.	s.	Eismn	a.	s, l West	cnt.	motor.	Duplex.	1000	11	Stmbg	g.	s.	dp.	B&Bek.	B-Lipe	selec	amid.	4	8.75	Sheldon	Sheldon	Spicer	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Harvey Tractor	HT		10	4000	125	s.	36x5	36x5d	Buda	3	4-4½x6	32.4	4	L.			p.	s.	Eismn	a.	s, l West	cnt.	motor.	Duplex.	1000	11	Stmbg	g.	s.	dp.	B&Bek.	B-Lipe	selec	amid.	4	8.75	Sheldon	Sheldon	Spicer	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Hawkeye	K		1½	1850	148	s.	34x3½	34x5	Buda	3	4-3½x5½	22.5	4	L.			p.	s.	Eismn	a.	s,l West*	cnt.	motor.	Simplex	1500	16	Zenith	v.	s.	dp.	B&Bek.	G-Lees	selec	unt-m.	3	7.00	Clark	Dtrt	Univ	int-g.	sprgs.	sprgs.	int-r-w.	ext-r-w.	Lvine
Hawkeye	L		2	2250	148½	s.	34x4	34x6	Buda	3	4-3½x5½	22.5	4	L.			p.	s.	Eismn	h.		cnt.	motor.	Simplex	1100	14	Zenith	g.	s.	dp.	Fuller	Fuller	selec	unt-m.	4	9.00	Clark	Dtrt	M-Eva	int-g.	sprgs.	sprgs.	int-r-w.	ext-r-w.	Gemr
Hendrickson	G		2			s.	36x4	36x4	Wauk		4-4½x5½	29.0	2				p.	s.	Dixie	h.		suc.	motor.	Wauk	1000	15	Stmbg	g.		dd.	Fuller	Fuller		unt-m.		7.75	Timkn	Tuthill		worm	rad-rd.	tor-a.	ext-r-w.	ext-r-w.	Ross
Hendrickson	H		3½	3000		s.	36x5	36x5d	Wauk		4-4½x5½	32.4	2				p.	s.	Dixie	h.	l.	cnt.	motor.	Wauk.	1100	14	Stmbg	g.		dd.	B&Bek.	Cotta	prog	unt-m.	3	10.3	Timkn	Tuthill		worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Hercules			2	2800	150	s.	34x4	36x4d	Cont.	3	6-3½x5½	29.4	6				p.	s.	Dixie	f.	s,l West	suc.	motor.	Mnrch.	1100	16	Rayfld	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	9½	own	Tuthill	M-Eva	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Hercules			3	3350	160	s.	34x4	36x5d	Cont.	3	6-3½x5½	29.4	6				p.	s.	Dixie	f.	s,l West	suc.	motor.	Mnrch.	1100	14	Rayfld	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	10½	own	Tuthill	M-Eva	worm	rad-rd.	sprgs.	int-r-w.	int-sht.	Ross
Hercules			4	4000	160	s.	36x5	40x5d	Cont.	3	6-3½x5½	33.7	3				p.	s.	Dixie	f.	s,l West	suc.	motor.	Mnrch.	1100	13	Rayfld	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	11½	own	Tuthill	Spicer	worm	rad-rd.	sprgs.	int-r-w.	int-sht.	Ross
Hercules			5	4750	168	s.	36x5	40x6d	Cont.	3	6-3½x5½	33.7	3				p.	s.	Dixie	f.	s,l West	suc.	motor.	Mnrch.	1100	12	Rayfld	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	12½	own	Tuthill	Spicer	worm	rad-rd.	sprgs.	int-r-w.	int-sht.	Ross
Highway, Trucktor	A		5		93	s.	34x4	36x4	Cont.		4-3½x5	22.5	4				p.	s.	Dixie	h.					10	Schblr	g.		dd.	B&Bek.	Warner	selec	unt-m.	2	13.4	own								
Higrade	A-18		1	1800	115	p.	35x5	35x5	Cont.	3	4-3½x5	19.6	4	L.			p.		Simms		s,l Le-Nv.			Simplex		20	Zenith	g.	s.	p.	Fuller	Fuller	id-cl	unt-m.	3	4.56	Sheldon			int-g.	ter-a.	tor-a.	ext-r-w.	int-f-w.	own
Hoover			½	1350	120	p.	32x4	33x4½	Cont.	3	4-3½x5	19.6	4	L.			t.		Dixie	h.	None			None		25	Schblr	v.	c.	d.	Fuller		selec	unt-m.	3	6.2	Sheldon	Seldn	Acme	worm	sprgs.	sprgs.	int-r-w.	ext-r-w.	Lvine
Horner			1½	2600	145	s.	36x4	36x4		3	4-4½x5½	27.2	4				p.	d.	Bosch	h.		cnt.	motor.	Mnrch	1200	16		g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.				Perf	Spicer	worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine
Horner			2	2750	145	s.	36x4	36x3½d		3	4-4½x5½	27.2	4				p.	d.	Bosch	h.		cnt.	motor.	Mnrch	1200	16		g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.				Perf	Spicer	worm	rad-rd.		int-r-w.	int-r-w.	Ross
Horner			3	3550	145	s.	36x5	40x4d	Cont.	3	4-4½x5½	32.4	2	t.			p.	d.	Bosch	h.		cnt.	motor.	Mnrch	1150	12		g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.				Perf	Spicer	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Horner			5	4750	156	s.	38x6	42x6d	Cont.	3	4-5½x5½	44.1	2	t.			p.	d.	Bosch	h.		cnt.	motor.	Mnrch	1050	10		g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	3	13.4	own	Perf	Spicer	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Hurlburt			1	1½	2600	136*	s.	34x4	34x5	Buda	3	4-3½x5½	22.5	4	L.			p.	s.	Eismn	l.	l,Vesta	cnt.	motor.		1375	18	Flech	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	6.25	own	Merl		worm	sprgs.	sprgs.	int-r-w.	ext-r-w.	Ross
Hurlburt			2	2	3500	148*	s.	36x4	36x4d	Buda	3	4-4½x5½	29.0	4	L.			p.	d.	Eismn	l.	l,Vesta	cnt.	motor.	Pierce.	1300	16	Flech	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.6	own	Merl		worm	rad-rd.	t-arm	int-r-w.	ext-sht.	Ross
Hurlburt			3	3½	4150	156*	s.	36x5	36x5d	Buda	4	4-4½x6	32.4	4	L.			p.	d.	Eismn	l.	l,Vesta	cnt.	motor.	Pierce.	1050	13	Flech	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.6	own	Merl		worm	rad-rd.	t-arm	int-r-w.	ext-sht.	Ross
Hurlburt			5	5	5000	156*	s.	36x5	40x6d	Buda	4	6-3½x5½	33.7	6	L.			p.	d.	Eismn	l.	l,Vesta	cnt.	motor.	Pierce.	1360	12	Flech	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	3	10.3	own	Merl		worm	rad-rd.	t-arm	int-r-w.	ext-sht.	Ross
Hurlburt			7	7	6500	156*	s.	36x6	40x7d	Buda	3	6-3½x5½	33.7	6	L.			p.	d.	Eismn	l.	l, Vesta	cnt.	motor.	Pierce.	1360	12	Flech	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	13.0	own	Merl		worm	rad-rd.	t-arm	int-r-w.	ext-sht.	Ross
Independent			F	1	1385	128*	s*	36x3*	36x4*	Cont.	3	4-3½x5	19.6	4				p.	s.	Eismn	f.	s, l Jasco	suc.	motor.	March	1350		Marvel	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3					worm	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross
Independent			G	2	1850	144	s.	36x3½	36x5	Cont.		4-4½x5½	27.2	4				p.	s.	Eismn	f.		suc.	motor.	March			Marvel	g.	s.	dd.			selec	unt-m.	3					worm	sprgs.	sprgs.	int-r-w	int-r-w.	Lvine

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TRUCKS—Continued

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in inches	TIRES Kind	TIRES Sizes in Ins. Front	TIRES Sizes in Ins. Rear	MOTOR Make Engine	No. of Crankshaft Bearings	Cylinders Bore and Stroke	S. A. E. Hp.	Cylinders Cast	Valves Placed	Spark Plug	Cooling—Water Circulation	IGNITION Type	IGNITION Make	IGNITION Spark Advance	Electric System—Type and Make	GOVERNOR Type	GOVERNOR Drive	GOVERNOR Make	SPEED Motor in r.p.m.	SPEED Truck in m.p.h.	FUEL SYS. Carbureter Make	FUEL SYS. Fuel Feed	FUEL SYS. Tank Location	CLUTCH Type	CLUTCH Make	GEARSET Make	GEARSET Type	GEARSET Location	GEARSET Speeds	Total Gear Reduction in High	Rear Axle	Springs, Make	Universals, Make	Final Drive	Propulsion Taken By	Torque Taken By	BRAKES Hand Brake	BRAKES Foot Brake	Steering Gear
Menominee.....H	1½	2290	144*	s.	36x3½	36x5	Cont.	3	4-3¾x5½	22.5	4	l.		p.	s.	Eismn..	h.	.....	cnt.	d-shft.	opt....	800	15	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	9.25	Timkn.	Tuthill.	Spicer.	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Gemr..
Menominee.....D	2	2715	144*	s.	36x4	36x6*	Cont..	3	4-4¼x5½	27.2	4	l.		p.	s.	Eismn..	h.	.....	cnt.	d-shft.	opt....	750	14	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	9.25	Timkn.	Tuthill.	Spicer.	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Gemr..
Menominee.....G	3½	3580	160*	s.	36x5	36x5d	Cont..	3	4-4¼x5½	32 4	2	l.		p.	s.	Eismn.	h.	.....	.....	.....	opt....	750	12	Stmbg..	g.	s.	dp.	B&Bek.	Cotta..	selec	amid.	3	10.3	Timkn.	Titanic.	Spicer..	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Gemr..
Menominee..... J	5	4540	160	..	36x6	40x6d	Wis...	..	4-3¾x5½	22 5	..	l.		p.	..	Eismn.	.....	.....	.....	.....	opt....	.....	...	Stmbg..	g.	s.	dp.	B&Bek.	Cotta..	id-c.	amid..	3	14.4	Timkn.	Titanic.	Acme..	worm.	rad-rd.	sprgs..	.....	.....	Gemr..
Modern.....30	...	1800	132	s.	34x3½	34x5	Cont..	..	4-3¾x5	22 5	4	..		p.	d.	x.....	f..	.....	.....	.....	opt....	.....	...	Zenith..	..	..	dd.	Fuller..	Fuller..	selec	unt-m.	3	....	Timkn.	.....	.....	worm.	rad-rd.	sprgs..	ext-r-w.	ext-r-w.	Ross...
Moreland.....17-N	1	2175	126	s.	34x3½	34x4	Cont..	3	4-3¾x5	22.5	4	l.		t.	s.	Dixie..	h.	l, West...	cnt.	motor.	Pierce.	1200	19	Master*	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	6.0	Timkn.	own....	Ther..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Moreland.....17-B	1½	2930	126*	s.	36x3½	36x5	Cont..	3	4-4¼x5½	27.2	4	l.		p.	s.	Dixie..	h.	l, West...	cnt.	motor.	Pierce.	1140	17	Master*	g.	s.	dd.	own....	own....	selec	amid..	4	7.0	Timkn.	own....	Ther..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Moreland.....17-C	2½	3500	144*	s.	36x4	36x7	Cont..	3	4-4¼x5½	32.4	2	l.		p.	s.	Dixie..	h.	l, West...	cnt.	motor.	Pierce..	1090	16½	Master*	g.	s.	dd.	own....	own....	selec	amid..	4	6.8	Timkn.	own....	Ther..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Moreland.....17-G	4	4500	162*	s.	36x5	40x5d	Wauk.	3	4-4½x6½	36.1	2	l.		p.	d.	Dixie..	h.	l, West...	cnt.	motor.	Wauk..	950	14	Master*	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	4	7.8	Timkn.	own...	Ther..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Moreland.....17-J	5	5000	180*	ps	36x6	40x6d	Wauk.	3	4-4½x6½	36.1	2	l.		p.	d.	Dixie..	h.	l, West...	cnt.	motor.	Wauk..	950	12	Master*	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	4	8.8	Timkn.	own...	Ther..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Moon.....B	1½	1650	140*	s.	36x3½	36x5*	Cont..	3	4-3¾x5½	22.5	4	l.		p.	d.	Bosch..	..	.....	.....	.....	none..	1800	18	Stmbg..	g.	s.	c.	Hart...	Muncie	selec	unt-j..	3	....	Sheldon	.....	.....	d-chn.	rad-rd.	.....	int-r-w.	int-r-w.	Warner
Muskegon.....20	2	2145	144	s.	36x4	36x6	Cont..	3	4-4½x5½	27.2	4	l..		p.	s.	Eismn..	f..	l, Remy...	cnt.	motor.	Pierce.	1230	16	Stwrt...	v.	s.	dd	Fuller..	Fuller..	selec	unt-m.	3	8.0	Torbn..	.....	Arvac..	int-g.	sprgs.	sprgs.	ext-r-w	int-r-w	Lvine..
Nash.....2017	1	1495	130	s.	34x3	34x4	own...	3	4-3¾x5½	22.5	4	l.		p.	s.	Delco..	..	s, l Bijur.	cnt.	motor.	Simplex	1345	20	Stmbg..	g.	s.	dp.	B&Bek.	Dtrt...	selec	unt-m.	3	6.8	Clark..	.....	.....	int-g..	sprgs.	sprgs..	ext-sht	ext-r-w	.....
Nash.....4017	2	3250	124*	s.	36x5	36x5	Buda..	3	4-4¼x5½	29.0	4	l.		p.	s.	Eismn..	h.	s, l Bijur*.	cnt.	motor.	Simplex	1190	15	Stmbg..	g.	s.	dp.	B&Bek.	own....	selec	amid..	3	8.5	own....	.....	.....	int-g-4	sprgs.	sprgs..	ext-sht	int-4-w	.....
Nash.....3017	2	1875	144	s.	34x4	34x6	own...	3	4-3¾x5½	22.5	4	l.		p.	s.	Delco.	h.	s, l Bijur..	cnt.	motor.	Simplex	1290	16	Stmbg..	g.	s.	dp.	B&Bek.	Dtrt...	selec	unt-m.	3	8.1	Clfor...	.....	.....	int-g.	sprgs.	sprgs..	ext-sht	ext-r-w	.....
Nelson & LeMoon E1	1½	1700	opt.	s.	36x3½	36x5	Cont..	3	4-3¾x5½	22.5	4	l.		p.	s.	Eismn..	h.	s, l West..	suc.	motor.	Mnrch	1100	18	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn.	Tuthill.	.....	worm.	sprgs.	sprgs..	int-r-w	int-r-w	Lvine..
Nelson & LeMoon E2	2	2250	opt.	s.	36x4	36x7	Cont..	3	4-4¼x5½	27.2	4	l.		p.	d.	Eismn..	h.	s, l West..	suc.	motor.	Mnrch	1100	18	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn.	Tuthill.	.....	worm.	sprgs.	sprgs..	int-r-w	int-r-w	Lvine..
Nelson & LeMoon E3	3	2950	opt	s.	36x5	38x5d	Cont..	3	4-4½x5½	32.4	2	l.		p.	d.	Eismn..	h.	s, l West..	suc.	motor.	Mnrch	1190	14	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.7	Timkn.	Tuthill.	.....	worm.	sprgs.	sprgs..	int-r-w	int-r-w	Lvine..
Nelson & LeMoon.E5	5	3750	opt	s.	36x6	40x6d	Buda..	3	4-4¼x6	32.4	4	..		p.	d.	Eismn.	h.	s, l West..	suc.	motor.	Mnrch	1050	11	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	11.3	Timkn.	Tuthill.	.....	worm.	sprgs.	sprgs..	int-r-w	int-r-w	Lvine..
Netco.....D	2	2800	144*	s.	36x4	36x6	Cont..	3	4-4¼x5½	27.2	4	l..		p.	s.	Eismn.	f..	.....	.....	.....	none..	1800	15	Zenith..	g.	s.	dd	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.5	Timkn.	Perf...	Hart..	worm.	sprgs.	sprgs..	int-r-w	int-r-w	Ross...
Netco.....H	2½	3200	168*	s.	36x4	36x7	Cont..	3	4-4½x5½	32 4	2	l.		p.	s.	Eismn.	f..	.....	.....	.....	none..	1500	15	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	4	8.5	Timkn.	Perf...	Hart..	worm.	sprgs.	sprgs..	int-r-w	int-r-w	Ross...
New York.....M	1½	2490	144*	s.	36x3½	36x5	Cont..	3	4-4¼x5½	27.2	4	l.		p.	s.	Bosch..	f.	None....	cnt.	motor.	Pierce.	1400	18	Stmbg..	g.	s.	dp.	B&Bek.	Cotta..	id-c.	unt-m.	3	7.7	Timkn.	.....	.....	worm.	rad-rd.	sprgs..	int-r-w	int-r-w	.....
New York.....N	2	2800	144	s.	36x4	36x4d	Cont..	3	4-4¼x5½	27.2	..	l.		p.	s.	Bosch..	f..	None....	cnt.	motor.	Pierce.	1100	15	Stmbg..	g.	s.	dp.	B&Bek.	Cotta..	id-c.	unt-m.	..	...	Timkn.	.....	.....	worm.	rad-rd.	sprgs..	int-r-w	int-r-w	.....
Niles.....B	1	1500	124	p.	35x5	35x5	Cont..	3	4-3½x5	19.6	4	l.		t.	s.	Eismn.	h.	.....	cnt.	motor.	Pierce.	1573	25	Stmbg..	g.	s.	dd.	Covert.	Covert.	selec	unt-m.	3	6.5	Timkn.	.....	.....	worm.	sprgs.	sprgs.	int-r-w	int-r-w	Gemr..
Niles.....E	2	2400	140*	s.	36x4	36x7	Cont..	3	4-4¼x5½	27.2	4	l.		p.	s.	Eismn.	h.	.....	cnt.	motor.	Pierce.	1173	15	Stmbg..	g.	s.	dp.	B&Bek.	Covert.	selec	amid.	3	8.5	Timkn.	.....	.....	worm.	rad-rd.	sprgs.	int-r-w	int-r-w	Gemr..
Noble.....NW	2	2300	149	s	36x4	36x6	Cont..	3	4-4¼x5½	27.2	4	l.		p.	s.	Eismn.	f..	l, Remy...	cnt.	motor.	Pierce.	1300	16	Stmbg..	v	s.	dp.	B&Bek.	Cotta..	id-c.	unt-m.	3	8.75	Sheldon	Kal...	Blood.	worm.	sprgs.	sprgs.	int-r-w	int-r-w	Ross...
Norwalk.....	1	1350	130	p.	31x4	31x4s	Lycmg	..	4-3½x5	19.6	..	l.		t.	s.	Deleo..	h.	s, l Dynt..	.....	.....	.....	1200	22	Carter..	..	..	dp.	.....	.....	.....	.....	3	7.0	.....	C.-C...	Univ..	worm.	sprgs.	sprgs.	int-r-w	int-r-w	C.A.S.
Norwalk.....	1½	1450	130	s..	34x3½	34x5	Lycmg	..	4-3½x5	19 6	..	l.		t.	s.	Delco..	h.	s, l Dynt..	.....	.....	.....	1200	18	Carter..	v.	..	dp	.....	.....	.....	.....	3	7.7	.....	C.-C...	Univ..	worm.	sprgs.	sprgs.	int-r-w	int-r-w	C.A.S.
Old Hickory.....M	½	875	112	p.	33x4	33x4	Lycmg	2	4-3½x5	16.9	4	l.		t.	s.	Conn..	h.	s, l Dynt.	.....	.....	None.	960	16	Carter..	g.	s.	c.	Lycmg.	G-Lees.	selec	unt-m.	3	6.0	Salsby..	Tuthill.	Own..	bevel..	tor-t.	tor-t.	int-r-w.	ext-r-w.	C.A.S...
Old Reliable.....	1½	1950	150*	s.	34x3½	36x6	Wis..	3	4-3¾x5	22.5	4	l..		p.	s.	Bosch..	h.	l.	.....	.....	.....	.....	...	Stmbg..	g.	d.	dd.	B-Lipe.	B-Lipe	selec	unt-m.	3	7.7	.....	.....	.....	worm.	sprgs.	sprgs..	int-r-w	int-r-w	Ross...
Old Reliable.....	2	2450	150	s.	34x4	36x4d	Wis...	4	4-4x6	25.6	4	l.		p.	s.	Bosch..	h.	l.	cnt.	duplx.	Duplex.	.....	...	Stmbg..	g.	d.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.7	Sheldon	.....	.....	worm.	sprgs.	sprgs..	int-r-w	int-r-w	Ross...
Old Reliable.....	2½	2750	....	s.	34x4	36x4d	Wis...	3	4-4½x5	29	2	t.		p.	s.	Bosch..	h.	.....	.....	.....	.....	.....	...	Stmbg..	g.	s.	dd.	.....	DSOC..	selec	unt-j.	3	....	SA&P.	.....	.....	d-chn.	rad-rd.	.....	int-r-w	ext-j-s.	Ross...
Old Reliable.....	3	3250	150	s.	34x5	36x5d	Wis...	4	4-4½x6	29.0	4	l.		p.	s.	Bosch..	h.	l.	cnt.	duplx.	Duplex.	.....	...	Stmbg..	g.	..	dd.	.....	B-Lipe.	selec	unt-m.	3	8.7	Sheldon	.....	.....	worm.	sprgs.	sprgs..	int-r-w	int-r-w	Ross...
Old Reliable.....	4	3750	....	s.	36x5	40x5d	Wis...	3	4-4½x5½	36.1	2	t.		p.	s.	Bosch..	h.	l.	cnt.	duplx.	Duplex.	.....	...	Stmbg..	g.	..	dd.	.....	B-Lipe.	selec	amid.	4	8.7	Sheldon	.....	.....	worm.	sprgs.	sprgs..	int-r-w	int-r-w	Ross...
Old Reliable.....	4	3750	....	s.	36x6	36x6d	Wis...	3	4-4½x5½	36.1	2	t.		p.	s.	Bosch..	h.	l.	.....	.....	.....	.....	...	Stmbg..	g.	s.	d.	.....	.....	selec	amid.	3	....	Sheldon	.....	.....	d-chn.	rad-rd.	.....	ext....	int.	Ross...
Old Reliable.....	5	4500	150*	s.	36x6	36x6d	Wis...	3	4-4½x5½	36.1	2	t.		p.	s.	Bosch..	h.	l.	cnt.	duplx.	Duplex.	.....	...	Stmbg..	g.	s.	d.	DriSe.	.....	selec	amid.	3	....	.....	.....	.....	d-chn.	rad-rd.	.....	ext-r-w	int-j-s.	Ross...
Old Reliable.....	7	5000	150	s.	36x6	40x7d	Wis...	3	4-5 7/16x5½	41.6	2	t.		p.	s.	Bosch..	h.	l.	cnt..	duplx.	Duplex.	.....	...	Stmbg..	g.	..	d.	.....	.....	selec	unt-j	4	....	.....	.....	.....	d-chn.	rad-rd	.....	int-r-w.	ext-j-s.	Ross...
Oneida.....A	1	2290	130	s.	36x3½	36x5	Cont..	..	4-3¾x5½	22.5	4	..		p.	s.	Bosch..	h.	l, Bosch..	cnt.	motor.	Duplex.	980	16	Stmbg..	g.	..	d.	H-Shaw	Cotta..	id-c.	amid..	3	8.7	Timkn.	Mather.	Spicer.	worm.	rad-rd	sprgs..	int-r-w	int-r-w	Ross...
Oneida.....B	1½	2650	130	s.	36x3½	36x5	Cont..	..	4-3¾x5½	22.5	4	..		p.	s.	Bosch..	h.	l, Bosch..	cnt.	motor.	Duplex.	1040	15	Stmbg..	g.	..	d.	H-Shaw	Cotta..	id-c.	amid..	3	9.2	Timkn.	Mather.	Spicer.	worm.	rad-rd	sprgs..	int-r-w	int-r-w	Ross...
Oneida.....C	2	3000	144	s.	36x4	36x4d*	Cont..	..	4-4½x5½	27.2	4	..		p.	s.	Bosch..	h.	l, Bosch..	cnt.	motor.	Duplex.	970	14	Stmbg..	g.	..	d.	H-Shaw	Cotta..	id-c.	amid..	3	9.2	Timkn.	Mather.	Spicer.	worm.	rad-rd	sprgs..	int-r-w	int-r-w	Ross...
Oneida.....D	3½	3600	160	s.	36x5	36x5d	Cont..	..	4-4½x5½	32.4	2	..		p.	s.	Bosch..	h.	l, Bosch..	cnt.	motor.	Duplex.	1150	12	Stmbg..	g.	..	d.	H-Shaw	Cotta..	id-c.	amid..	3	10.3	Timkn.	Mather.	Spicer.	worm.	rad-rd.	sprgs.	int-r-w	int-r-w	Ross...
Overland.....Panel	...	840	104	p.	31x4	31x4	own...	2	4-3¾x5	18.2	4	l..		t.	..	Conn...	h.	s, l A-Lite.	.....	.....	none..	.....	...	Tltsn...	v.	d.	c.	own....	own....	selec	unt-x..	3	4.3	own....	.....	.....	bevel..	tor-t.	tor-t.	int-r-w	ext-r-w	own....
Overland.....Express	...	975	106	p.	33x4½	33x4½	own...	5	4-4¼x4½	27.2	4	l..		t.	..	Conn...	h.	s, l A-Lite.	.....	.....	none..	.....	...	Tltsn...	g.	s.	c.	own....	own....	selec	unt-x.	3	4.4	own....	.....	.....	bevel..	tor-t.	tor-t.	int-r-w	ext-r-w	own....
Packard.....1-E	1	2650	126*	s.	34x3½	34x6	own...	4	4-4x5½	25.6	4	l..		p.	d.	Dixie..	h.	s, l Bijur.	cnt.	motor.	own....	1000	16	own....	p.	s.	dd.	own....	own....	selec	amid..	4	6.25	own....	.....	.....	worm.	rad-rd..	t-arm	int-r-w	ext-sht	own....
Packard.....1½-E	1½	3000	126*	s.	34x3½	34x3½d	own...	4	4-4x5½	25.6	4	l..		p.	d.	Dixie..	h.	s, l Bijur.	cnt.	motor.	own....	1000	16	own....	p.	s.	dd.	own....	own....	selec	amid..	4	6.25	own....	.....	.....	worm.	rad-rd.	t-arm	int-r-w	ext-sht	own....
Packard.....2-E	2	3400	144*	s.	34x4	34x4d	own...	4	4-4x5½	25.6	4	l..		p.	d.	Dixie..	h.	s, l Bijur.	cnt.	motor.	own....	1000	14	own....	p.	s.	dd.	own....	own....	selec	amid..	4	7.25	own....	.....	.....	worm.	rad-rd.	t-arm	int-r-w	ext-sht	own....
Packard.....3-E	3	4100	156*	s.	36x5	36x5d	own...	4	4-4½x5½	32.4	4	l..		p.	d.	Dixie..	h.	s, l Bijur.	cnt.	motor.	own....	1000	12	own....	p.	s.	dd.	own....	own....	selec	amid..	4	9.0	own....	.....	.....	worm.	rad-rd.	t-arm	int-r-w	ext-sht	own....
Packard.....4-E	4	4450	156*	s.	36x5	40x5d	own...	4	4-4½x5½	32.4	4	l..		p.	d.	Dixie..	h.	s, l Bijur.	cnt.	motor.	own....	1000	12	own....	p.	s.	dd.	own....	own....	selec	amid..	4	10.0	own....	.....	.....	worm.	rad-rd.	t-arm	int-r-w	ext-sht	own....
Packard.....5-E	5	5150	156	s.	36x6	40x6	own...	4	4-5 x5½	40.0	4	l..		p.	d.	Dixie..	h.	s, l Bijur.	cnt.	motor.	own....	1000	11	own....	p.	s.	dd.	own....	own....	selec	amid..	4	10.7	own....	.....	.....	worm.	rad-rd.	t-arm	int-r-w	ext-sht	own....
Packard.....6-E	6	5400	156	s.	36x6	40x7	own...	4	4-5 x5½	40.0	4	l..		p.	d.	Dixie..	h.	s, l Bijur.	cnt.	motor.	own....	1000	11	own....	p.	s.	dd.	own....	own....	selec	amid..	4	10.7	own....	.....	.....	worm.	rad-rd.	t-arm	int-r-w	ext-sht	own....
Packet.....	1/8	299	100	p.	28x3	28x3	Prugh.	2	4-2½x4	12.1	4	l..		t.	s.	A.Kent.	a.	.....	.....	.....	none..	1500	25	Carter..	g.	d.	.	own....	own....	fric.	unt-j..	3	4.2	own....	.....	.....	d-chn.	rad-rd	.....	int-r-w.	int-r-w.	own....
Palmer.....	1	1685	132½	s.	34x3½	34x4	Cont..	3	4-3¾x5	22.5	4	l..		t.	s.	Bosch..	f..	.....	.....	.....	none..	.....	18	Stmbg..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	....	Torbn.	.....	.....	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Ross...
Palmer.....	2	2495	144	s.	36x3½	36x3½d	Cont..	3	4-4¼x5½	27.2	4	l..		p.	s.	Bosch..	f..	.....	cnt.	motor.	Pierce..	1000	15	Stmbg..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.7	Timkn.	.....	.....	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Ross...
Pan-American.....	2½	2750	160	s.	36x4	36x6	Buda...	..	4-4¼x5½	28.9	4	..		p.	s.	Dixie..	h.	.....	suc.	.....	.....	1100	15	Stmbg..	v.	..	dd.	.....	.....	selec	unt-m.	3	.....	.....	.....	.....	int-g.	sprgs.	.....	int.	ext-r-w	Ross...
Panhard.....A	1	985	125	ps	32x3½	32x3½	Gray..	3	4-3½x5	19 6	4	l..		t.	s.	A-Lite..	h.	l, A-Lite..	.....	.....	.....	1600	28	Schblr..	v.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	6.5	Torbn.	Kal...	Arvac..	int-g..	tor-t..	sprgs..	int-r-w.	ext-r-w.	Lvine..
Panhard.....B	1½	1185	130	s.	32x3½	32x4	Gray..	3	4-3½x5	19.6	4	l..		t.	s.	A-Lite.	h.	l, A-Lite..	.....	.....	.....	1600	22	Schblr..	v.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	8.0	Torbn.	Kal...	Arvac..	int-g..	tor-t..	sprgs..	int-r-w.	ext-r-w.	Lvine..
Peerless.....TC3	3	4000	151*	s.	36x4	40x4d	own...	3	4-4½x6½	32.4	2	t.	m	p.	d.	Remy..	h.	.....	cnt.	motor.	own....	925	14½	Stmbg..	g.	s.	c.	own....	own....	selec	unt-j..	4	7.4	own....	.....	.....	d-chn.	rad-rd.	.....	int-r-w.	ext-j-s.	own....
Peerless.....TC4	4	4150	151*	s.	36x5	40x5d	own...	3	4-4½x6½	32.4	2	t.	m	p.	d.	Remy..	h.	.....	cnt.	motor.	own....	925	12½	Stmbg..	g.	s.	c.	own....	own....	selec	unt-j..	4	8.7	own....	.....	.....	d-chn.	rad-rd.	.....	int-r-w.	ext-j-s.	own....
Peerless.....TC5	5	4700	151*	s.	38x6	42x6d	own...	3	4-4½x6½	32.4	2	t.	m	p.	d.	Remy..	h.	.....	cnt.	motor.	own....	925	11	Stmbg..	g.	s.	c.	own....	own....	selec	unt-j..	4	10.5	own....	.....	.....	d-chn.	rad-rd.	.....	int-r-w.	ext-j-s.	own....
Peerless.....TC6	6	5200	151*	s.	38x7	42x7d	own...	3	4-4½x6½	32.4	2	t.	m	p.	d.	Remy..	h.	.....	cnt.	motor.	own....	925	11	Stmbg..	g.	s.	c.	own....	own....	selec	unt-j..	4	10.5	own....	.....	.....	d-chn.	rad-rd.	.....	int-r-w.	ext-j-s.	own....
Pierce-Arrow.....	2	3750	150*	s.	36x4	36x4d	own...	3	4-4x5½	25.6	2	t.		p.	s.	Eismn*.	h.	.....	cnt.	motor.	own....	1050	16	own....	g.	s.	c.	own....	own....	selec	amid.	4	7.0	own....	.....	.....	worm.	rad-rd.	t-arm	int-r-w.	ext-sht	own....
Pierce-Arrow.....	5	5500	168*	s.	36x5	40x6d	own...	3	4-4½x6	38.0	2	t.		p.	d.	Bosch*.	h.	.....	cnt.	motor.	own....	950	14	own....	g.	s.	c.	own....	own....	selec	amid.	3	7.8	own....	.....	.....	worm.	rad-rd.	t-arm	int-r-w.	ext-sht	own....
Pullmore.....	3	3650	163	s.	36x6	36x6	Buda...	..	4-4¼x6	32.4	4	l.		p.	s.	Eismn.	h.	West.....	cnt.	motor.	Pierce.	1050	12	.....	v.	s.	...	B&Bek.	Warner	selec	unt-m.	3	9.9	own....	.....	.....	bevel	rad-rd.	rad-rd.	int-r-w.	ext-d-s.	Ross...
Rainier.....	½	1150	115	p.	33x4	33x4	Light..	2	4-3½x4½	16.9	4	l..		t.	s.	Dixie..	h.	s, l Splitd	.....	.....	none..	2000	34	Zenith..	v.	s.	dp	B-Lipe.	B-Lipe.	selec	unt-m.	3	5.8	Timkn.	Perf...	Hart..	worm.	sprgs.	sprgs..	int-r-w.	int-r-w.	Lvine..
Rainier.....	1½	1350	125	p*	32x4	32x4	Light..	..	4-3½x4½	16.9	4	l..		t.	..	Dixie..	h.	s, l Bijur.	.....	.....	none..	.....	...	Zenith..	v.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.2	Hayes..	Perf...	Hart..	worm.	sprgs.	sprgs..	ext-r-w.	ext-r-w.	Lvine..
Rainier.....	½	1250	....	..	.....	.....	.....	..	.....	.....	..	..		..	..	.....	..	.....	.....	.....	.....	.....	...	.....	..	..	..	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rennoc.....	2½	3250	144																																							
Rennoc Tractor.....	8	3250	116	s.	36x5	36x7	Buda...	..	4-4½x5½	27.2	4	l..	..	p.	d.	Splitdf.	h.	l, West...	cnt.	motor.	Pierce.	1200	18	Stmbg..	v.	s.	dd	Warner	Warner	selec	amid.	4	8.6	sprgs...	Rolnd..	Hart..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..

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TRUCKS—Continued

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES Kind	TIRES Sizes in Ins. Front	TIRES Sizes in Ins. Rear	MOTOR Make Engine	No. of Crankshaft Bearings	Cylinders Bore and Stroke	S. A. E. Hp.	Cylinders Cast	Valves Placed	Spark Plug	Cooling—Water Circulation	IGNITION Type	IGNITION Make	IGNITION Spark Advance	Electric System—Type and Make	GOVERNOR Type	GOVERNOR Drive	GOVERNOR Make	SPEED Motor in r.p.m.	SPEED Truck in m.p.h.	FUEL SYS. Carburetor Make	FUEL SYS. Fuel Feed	FUEL SYS. Tank Location	TRANSMISSION CLUTCH Type	CLUTCH Make	GEARSET Make	GEARSET Type	GEARSET Location	GEARSET Speeds	Total Gear Reduction in High	Rear Axle	Springs, Make	Universals, Make	Final Drive	Propulsion Taken By	Torque Taken By	BRAKES Hand Brake	BRAKES Foot Brake	Steering Gear
Titan	5	4900	156	s.	36x6	40x6d	Buda..	3	4-4½x6	32.4	4	...	...	p.	s.	Bosch..	h.	l, Bosch..	cnt.	motor.	Simplex	1000	12	Stmbg..	g.	s.	dp.	B&Bek.	Cotta..	id-c.	amid..	3	11.0	Clark..	Sheldon	.....	int-g..	rad-rd.	sprgs..	int....	int.....	Lvine..
Traffic	2	1095	133	..	34x3	34x4	Gray..	3	4-3½x5	19.6	4	...	t.	..	Kngstn.	h.	.....	.....	.....	.....	.....	1500	...	Special.	g.	d.	d..	B&Bek.	Covert.	.....	.....	3	....	Russel..	.....	.....	.....	.....	.....	.....	.....	.....
Transport Tractor...N	5	2750	80	s.	34x3½	34x4d	.....	3	4-3½x5	22.5	4	L.	..	t.	s.	Bosch..	f.	.....	suc.	motor.	Mnrch	....	12	Zenith..	g.	..	dd.	.....	.....	.....	.....	4	....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Triangle	A	1½	2185	144	s.	34x3½	34x6	Wauk.	..	4-3½x5½	22.5	4	...	p.	s.	Eisman..	f.	.....	cnt.	motor.	Wauk..	1200	15	Stmbg..	g.	..	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.0	Clark..	.....	.....	.....	.....	.....	.....	.....	.....
Union	B	2½	2075	152	s.	39x4	39x6	Wis...	4	4-4x6	25.6	4	L.	..	p.	s.	Eisman..	h.	l*.....	cnt.	d-shft.	Simplex	1200	15	Schblr..	g.	d.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.7	Russel..	Mthr...	.....	int-g..	sprgs..	sprgs..	int-r-w.	ext-r-w.	Ross...
United	AX	1½	1850	132	s.	34x3½	34x5	Buda..	3	4-3½x5	22.5	4	L.	..	p.	s.	Eisman..	h.	s,l.....	cnt.	motor.	Simplex	1125	16	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.7	Sheldon	Tuthill.	Blood..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
United	BX	2½	2550	148	s.	36x4	36x8	Buda..	3	4-4½x5½	28.9	4	L.	..	p.	s.	Eisman..	h.	s,l*.....	cnt.	motor.	Simplex	888	14	Stmbg..	g.	s.	dd.	B&Bek.	B-Lipe.	selec	amid.	4	8.5	Sheldon	Sheldon	Blood..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
United	CX	3½	3450	160	s.	36x5	36x5	Buda..	3	4-4½x6	32.4	2	t.	..	p.	s.	Eisman..	h.	s,l*.....	cnt.	motor.	Simplex	980	12	Stmbg..	g.	s.	dd.	B&Bek.	B-Lipe.	selec	amid.	4	8.7	Sheldon	Tuthill.	Blood..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
United	VX	5	4500	160	s.	36x6	40x6	Buda..	3	4-4½x6	32.4	2	t.	..	p.	s.	Eisman..	h.	s,l*.....	cnt.	d-shft.	Simplex	951	12	Stmbg..	g.	s.	dd.	B&Bek.	B-Lipe.	selec	amid.	4	11.6	Sheldon	Tuthill.	Blood..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
United Tractor	6	2490	110	s.	34x3½	34x7	Buda..	..	4-4½x5½	27.2	4	L.	..	p.	s.	Bosch..	.....	.....	.....	.....	.....	.....	...	Zenith..	g.	s.	...	Muncie	Muncie	selec	unt-m.	4	10.0	Sheldon	.....	.....	int-g..	rad-rd.	.....	int-r-w.	int-r-w.	Ross...
U. S.	E	2½	2800	144*	s.	34x4	36x4d	Cont..	3	4-4½x5½	27.2	4	L.	..	p.	d.	Bosch..	h.	l, Bosch..	cnt.	motor.	Pierce..	1160	15	Stmbg..	g.	s.	c..	Hart...	Cotta..	id-c.	amid.	3	8.2	own....	Tuthill.	Hart...	d-chn.	rad-rd.	.....	int-r-w.	ext-r-w.	Lvine..
U. S.	H	2½	3250	144*	s.	34x4	36x4d	Cont..	3	4-4½x5½	27.2	4	L.	..	p.	d.	Bosch..	h.	l, Bosch..	cnt.	motor.	Pierce..	1160	15	Stmbg..	g.	s.	c..	Hart...	Cotta..	id-c.	amid.	3	8.7	Sheldon	Sheldon	Hart...	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
U. S.	D	3½	3500	162*	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	L.	..	p.	d.	Bosch..	h.	l, Bosch..	cnt.	motor.	Pierce..	1090	13	Stmbg..	g.	s.	c..	Hart...	Cotta..	id-c.	amid.	3	8.1	own....	Tuthill.	Hart...	d-chn.	rad-rd.	.....	int-r-w.	ext-r-w.	Lvine..
U. S.	J	3½	3950	162*	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	L.	..	p.	d.	Bosch..	h.	l, Bosch..	cnt.	motor.	Pierce..	1090	13	Stmbg..	g.	s.	c..	Hart...	Cotta..	id-c.	amid.	3	11.7	Sheldon	Sheldon	Hart...	worm.	rad-rd.	.....	int-r-w.	int-r-w.	Lvine..
U. S.	K	5	4850	168*	s.	36x5	40x6d	Wauk.	3	4-4½x6½	36.1	2	L.	..	p.	d.	Bosch..	h.	l, Bosch..	cnt.	motor.	Wauk..	950	12	Stmbg..	g.	s.	dp.	B&Bek.	Cotta..	id-c.	amid.	3	8.8	Sheldon	Sheldon	Hart...	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Lvine..
Universal	G	1½	1950	133*	s.	34x3½	34x5	Buda..	2	4-3½x5½	22.5	4	L.	..	t.	d.	Eisman..	.....	.....	cnt.	motor.	own....	1160	15	Zenith..	g.	s.	dp.	B&Bek.	Covert.	selec	unt-m.	3	7.2	own....	.....	.....	worm.	rad-rd.	.....	int....	int.....	Lvine..
Universal	D	2	2800	132*	s.	36x4	36x4d	Buda..	3	4-4x5½	25.6	2	t.	..	p.	d.	Eisman..	h.	.....	cnt.	motor.	own....	1057	12	Zenith..	g.	s.	dd.	own....	own....	selec	amid.	3	9.1	own....	.....	.....	d-chn.	rad-rd.	.....	ext....	int.....	Lvine..
Universal	A	3	3400	132*	s.	36x5	36x5d	Buda..	3	4-4x5½	25.6	2	t.	..	p.	d.	Eisman..	h.	.....	cnt.	motor.	own....	1057	12	Zenith..	g.	s.	dd.	own....	own....	selec	amid.	3	10.2	own....	.....	.....	d-chn.	rad-rd.	.....	ext-sht.	int-r-w.	Lvine..
Velie	25A	2	2750	150*	s.	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	L.	..	p.	s.	Bosch..	h.	None....	cnt.	motor.	Pierce..	1008	18	Stmbg..	v.	s.	dp.	own....	B-Lipe.	selec	amid.	4	7.7	Timkn.	Mthr..	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Velie	26A	3½	3600	172*	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	L.	..	p.	s.	Bosch..	h.	None....	cnt.	motor.	Pierce..	1215	15	Stmbg..	v.	s.	dp.	own....	B-Lipe.	selec	amid.	4	10.3	Timkn.	Mthr..	Spicer..	worm.	rad-rd.	sprgs..	int....	int....	Gemr..
Vim	21	½	845	108	p.	31x4	31x4	own...	3	4-3x4½	14.4	4	L.	..	t.	s.	Dixie..	h.	.....	.....	.....	.....	....	25	Zenith..	g.	s.	c.	own....	own....	selec	unt-m.	3	5.25	W-W...	Sheldon	Spicer..	bevel..	sprgs..	sprgs..	ext-r-w.	int-r-w.	Jacox..
Vim	22	1½	3150	142	s..	36x4	36x6	own...	5	4x3½x5½	22.5	4	..	..	p.	..	Dixie..	h.	.....	.....	.....	Simplex	....	20	Zenith..	g.	s.	dp.	own....	own....	....	amid.	4	....	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	.....
Vim	23	3	3950	150*	s..	36x4	36x4d	own...	5	4x4½x5½	28.9	4	..	..	p.	..	Dixie..	h.	.....	.....	.....	Simplex	....	16	Zenith..	g.	s.	dp.	own....	own....	....	amid.	4	....	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	.....
Walter	F	5	5000	156	s.	40x6	40x6d	own...	..	4-4½x6½	36.1	4	..	..	p.	s.	Eisma..	f..	s, l West..	....	motor.	own....	1000	...	H&N..	g.	..	dp.	own....	own....	selec	amid.	4	8.0	own....	Merl...	.....	int-g-4	sprgs..	sprgs..	int-r-w.	ext-sht.	own...
Watson	Tractor	5	4050	80	s.	36x4	40x5d	Cont..	3	4-4½x5½	32.4	2	L.	..	p.	d.	Bosch..	h.	.....	cnt.	motor.	Pierce..	1100	11	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	11.6	Timkn.	Sheldon	Spicer.	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Gemr..
White	GBBE	¾	2300	133½	p.	34x4½	34x4½	own...	2	4-3½x5½	22.5	4	L.	m	p.	s.	.....	h.	s,l*.....	.....	.....	none...	....	...	own....	g.	s.	p.	own....	own....	selec	amid.	4	....	own....	.....	own...	bevel..	sprgs..	rad-rd.	int-r-w.	ext-r-w.	own....
White	TBC	1½	3300	157½	s*	36x3½	36x3½d	own...	2	4-3½x5½	22.5	4	L.	m	p.	s.	.....	h.	s,l*.....	.....	.....	none...	....	...	own....	g.	s.	p.	own....	own....	selec	amid.	4	....	own....	.....	own...	d-red..	sprgs..	rad-rd.	int-r-w.	ext-r-w.	own....
White	TAD	3	4100	163	s.	36x5	40x5d	own...	2	4-3½x5½	22.5	4	L.	m	p.	s.	.....	h.	.....	.....	.....	none...	....	...	own....	g.	s.	p.	own....	own....	selec	amid.	4	....	own....	.....	own...	d-chn.	sprgs..	rad-rd.	int-r-w.	ext-j-s.	own....
White	TCD	5	5000	169	s.	36x5	40x6d	own...	3	4-4½x6½	29.0	4	L.	m	p.	s.	.....	h.	.....	.....	.....	none...	....	...	own....	g.	s.	p.	own....	own....	selec	amid.	4	....	own....	.....	own...	d-chn.	sprgs..	rad-rd.	int-r-w.	ext-j-s.	own....
Wichita	A	1	1800	110*	s.	34x3	34x4	own...	2	4-3½x5	19.6	4	L.	..	t.	s.	Bosch..	h.	s,l.....	.....	.....	none...	....	15	Stmbg..	g.	s.	c..	own....	Covert.	selec	unt-j..	3	7.3	Sheldon	.....	.....	d-chn.	rad-rd.	t-arm.	int-r-w.	int-sht.	Ross...
Wichita	K	1	1800	118*	s.	36x3	36x4	own...	2	4-3½x5	19.6	4	L.	..	t.	s.	Bosch..	h.	s,l.....	.....	.....	none...	....	15	Stmbg..	g.	s.	c..	own....	Covert.	selec	amid.	3	7.8	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wichita	L	1½	2100	118*	s.	36x3	36x5	own...	2	4-3½x5	19.6	4	L.	..	t.	s.	Bosch..	h.	s,l.....	.....	.....	none...	....	15	Stmbg..	g.	s.	c..	own....	Covert.	selec	amid.	3	8.6	Sheldon	.....	.....	worm.	sprgs..	sprgs..	ext-r-w.	int-r-w.	Ross...
Wichita	B	2	2500	118*	s.	34x3½	34x6	own...	2	4-3½x5	19.6	4	L.	..	t.	s.	Bosch..	h.	s,l.....	.....	.....	none...	....	13	Stmbg..	g.	s.	c..	own....	Covert.	selec	unt-j..	3	8.2	Sheldon	.....	.....	d-chn.	rad-rd.	t-arm.	int-r-w.	int-sht.	Ross...
Wichita	R	2½	2700	144*	s.	36x4	36x7	Wauk.	3	4-3½x5½	22.5	4	L.	..	p.	s.	Bosch..	h.	s,l.....	cnt.	motor.	Wauk..	1060	13	Stmbg..	g.	s.	c..	own....	Covert.	selec	amid.	3	10.6	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wichita	O	3½	3600	165*	s.	36x5	36x5d	Wauk.	3	4-4½x5½	32.4	2	L.	..	p.	s.	Bosch..	h.	s,l.....	cnt.	motor.	Wauk..	1200	11	Stmbg..	g.	s.	c..	Hart...	Covert.	selec	amid.	3	11.7	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wichita	Q	5	4300	165*	s.	40x6	40x6d	Wauk.	3	4-4½x5½	32.4	2	L.	..	p.	s.	Bosch..	h.	s,l.....	cnt.	motor.	Wauk..	940	9	Stmbg..	g.	s.	c..	Hart...	Covert.	selec	amid.	3	13.7	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wichita	M	2	2500	144	s.	36x3½	36x6	Wauk.	3	4-3½x5½	22.5	4	L.	..	p.	s.	Bosch..	h.	s,l.....	cnt.	motor.	Wauk..	1060	13	Stmbg..	g.	s.	..	.....	Fuller..	selec	amid.	3	10.6	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wilcox	S	1	1950	128	p*	35x5*	35x5*	Cont..	3	4-3½x5	22.5	4	L.	..	t.	s.	Bosch..	h.	l, West..	cnt.	motor.	Pierce..	1200	18	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	6.5	Sheldon	Sheldon	Spicer.	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Wilcox	X	1½	2775	144	s.	36x4	36x5	own...	3	4-4½x5	29.0	2	L.	..	p.	s.	Bosch..	h.	l, West..	cnt.	motor.	Pierce..	1100	16	Stmbg..	g.	s.	c..	own....	own....	selec	amid.	3	7.7	Sheldon	Sheldon	own*..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Wilcox	Q	2	2950	150*	s.	36x4	36x3½d	own...	3	4-4½x5	29.0	2	L.	..	p.	s.	Bosch..	h.	l, West..	cnt.	motor.	Pierce..	1100	14	Stmbg..	g.	s.	c..	own....	own....	selec	amid.	3	8.7	Sheldon	Sheldon	own*..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Wilcox	P	3½	3600	154*	s.	36x5	36x5d	own...	3	4-4½x5	29.0	2	L.	..	p.	s.	Bosch..	h.	l, West..	cnt.	motor.	Pierce..	1100	10	Stmbg..	g.	s.	c..	own....	own....	selec	amid.	3	11.7	Sheldon	Sheldon	own....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Wilcox	W	5	4475	162	s.	36x5	40x6d	Wauk.	..	4-4½x6½	36.1	2	..	..	p.	s.	Bosch..	h.	.....	cnt.	motor.	Wauk..	1000	12	Stmbg..	v.	s.	c..	own....	own....	selec	amid.	4	8.7	Sheldon	Sheldon	Spicer*.	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Wilson	1	1560	124*	s.	34x3½	34x4	Cont..	3	4-3½x5	19.6	4	L.	..	p.	s.	Eisman..	f.	.....	cnt.	motor.	Pierce.	1800	18	.....	g.	s.	dd.	.....	Covert.	selec	unt-m.	3	.....	.....	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wilson	E	2	2550	144	s.	36x4	36x4d	Cont..	3	4-4½x5½	27.2	4	L.	..	p.	s.	Eisman..	f.	.....	cnt.	motor.	Pierce.	1050	15	Marvel.	g.	s.	c..	Hart...	Covert.	selec	amid.	3	8.6	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wilson		3½	3800	160	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	4	L.	..	p.	s.	Eisman..	f.	.....	cnt.	motor.	Pierce.	1100	13	Marvel.	g.	s.	dd.	Warner	Warner	selec	amid.	4	8.75	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wilson		5	4600	160	s.	36x6	40x6d	Cont..	3	4-4½x5½	32.4	4	L.	..	p.	s.	Eisman..	f.	.....	cnt.	motor.	Pierce.	1100	12	Marvel.	g.	s.	dd.	Warner	Warner	selec	amid.	4	10.2	Sheldon	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Winther	28	1	2250	132	s.	34x3½	34x5	Wis...	4	4-3½x5	16.9	4	L.	..	p.	s.	Eisman..	h.	Bijur....	cnt.	motor.	Duplex.	1250	18	Master.	v.	d.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	7.0	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs..	ext-r-w.	int-r-w.	Ross...
Winther	48	2	3000	150	s.	36x4	36x4d	Wis...	1	4-4x6	25.6	4	L.	..	p.	s.	Eisman..	h.	Bijur....	cnt.	motor.	Duplex.	1100	16	Master.	v.	d.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	8.1	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Winther	68	3	3600	150	s.	36x5	36x5d*	Wis...	1	4-4x6	25.6	4	L.	..	p.	s.	Eisman..	h.	Bijur....	cnt.	motor.	Duplex.	1300	15	Master.	v.	d.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	10.0	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs..	ext-r-w.	int-r-w.	Ross...
Winther	88	4	4200	156	s.	36x5	.....	Wis...	1	4-4½x6	28.9	4	L.	..	p.	s.	Eisman..	h.	Bijur....	cnt.	motor.	Duplex.	1300	14	Master.	v.	d.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	12.5	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs..	ext-r-w.	int-r-w.	Ross...
Winther	108	5	5000	162	s.	36x5	40x6d*	Wis...	1	4-4½x5½	36.1	2	L.	..	p.	s.	Eisman..	h.	Bijur....	cnt.	motor.	Duplex.	1100	12	Master.	v.	d.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	12.5	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Winther	128	6	5250	162	s.	36x6	40x12	Wis...	1	4-5x5½	42.0	2	L.	..	p.	s.	Eisman..	h.	Bijur....	cnt.	motor.	Duplex.	1100	11	Master.	v.	d.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	12.5	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Winther	148	7	5500	162	s.	36x6	40x14	Wis...	3	4-5½x6½	42.0	2	L.	..	p.	s.	Eisman..	h.	Bijur....	cnt.	motor.	Duplex.	1100	10	Master.	v.	d.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	12.5	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs..	ext-r-w.	int-r-w.	Ross...
Witt Will	WD18	1	2000	120	s*	36x3*	36x4*	Cont..	3	4-3½x5½	22.5	4	L.	..	p.	s.	Eisman..	s.	.....	cnt.	motor.	Pierce.	....	...	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	....	Timkn.	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Witt Will	WD18	2	2850	144	s.	36x3½	36x7	Cont..	3	4-4½x5½	27.2	4	L.	..	p.	s.	Eisman..	s.	.....	cnt.	motor.	Pierce.	.....	...	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	....	Timkn.	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wisconsin	B	1½	1650	136	s.	34x3½	34x4	Wauk.	3	4-3½x5½	19.6	4	L.	..	p.	s.	Eisman..	h.	.....	cnt.	motor.	Wauk..	1200	15	Master.	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.7	Sheldon	Sheldon	Blood..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Wisconsin	C	2½	2800	156*	s.	36x4	36x6*	Wauk.	3	4-4x5½	25.6	2	L.	..	p.	s.	Eisman..	h.	.....	cnt.	motor.	Wauk..	1100	14	Master.	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	8.7	Sheldon	Sheldon	Blood..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
Wisconsin	E	5	5000	166	s.	36x6	40x6d	Wauk.	3	4-4½x6½	36.1	2	L.	..	p.	s.	Eisman..	h.	.....	cnt.	motor.	Wauk..	1300	12	Master.	g.	s.	dd.	B&Bek.	Cotta..	id-c.	unt-m.	3	11.5	Sheldon	Sheldon	Blood..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Lvine..
W. S.	4	3½	....	154	s.	36x6	36x6	Cont..	3	4-4½x5½	27.2	2	..	..	p.	d.	Natl..	h.	.....	.....	.....	.....	.....	...	Zenith..	g.	s.	d..	Fuller..	Fuller..	.....	unt-m.	3	....	Timkn.	.....	.....	wm-4.	sprgs..	sprgs..	int.	int.....	Ross...

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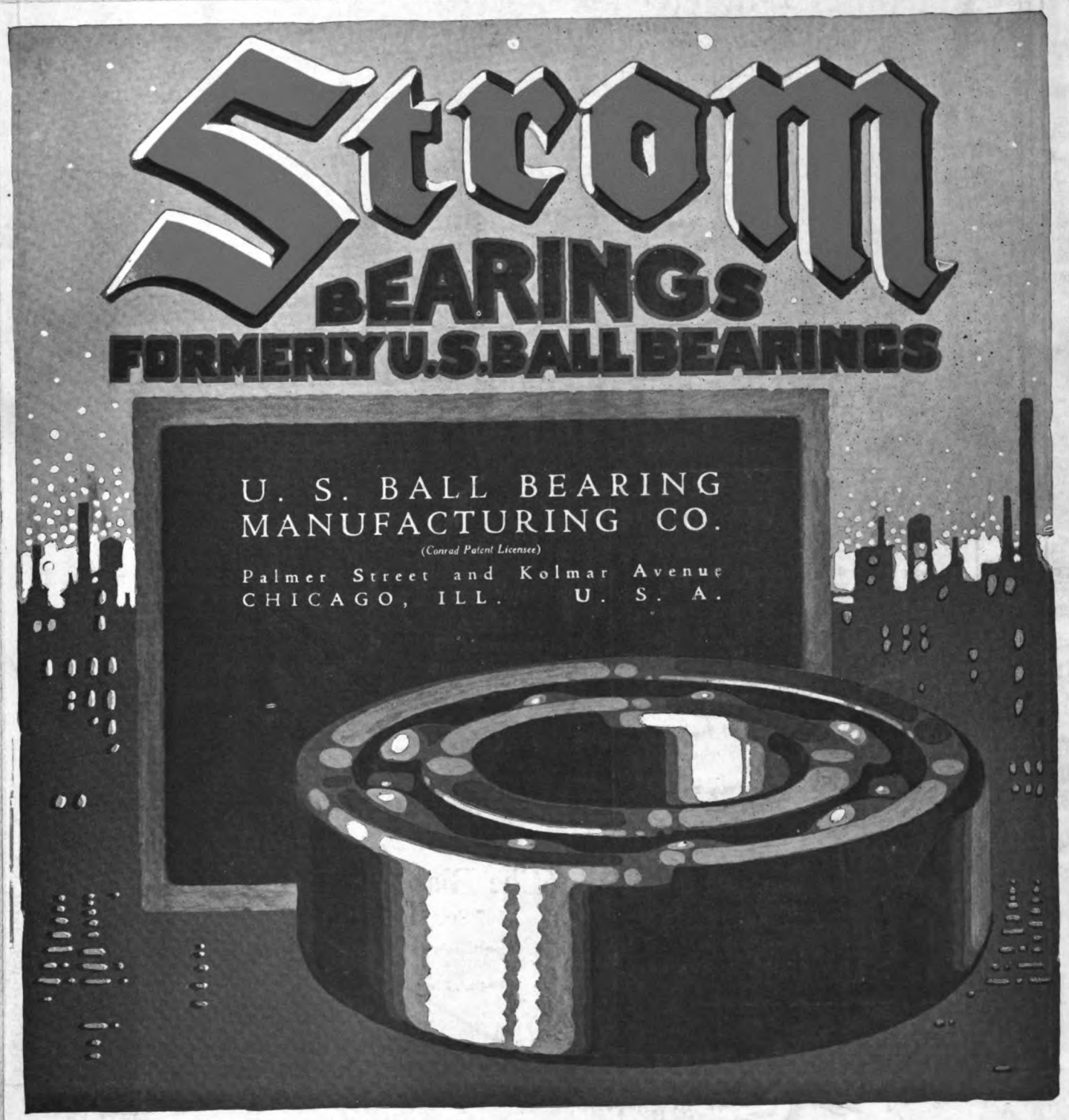
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DEALERS, JOBBERS AND GARAGEMEN

Volume LV
No. 6

New York, May 8, 1918

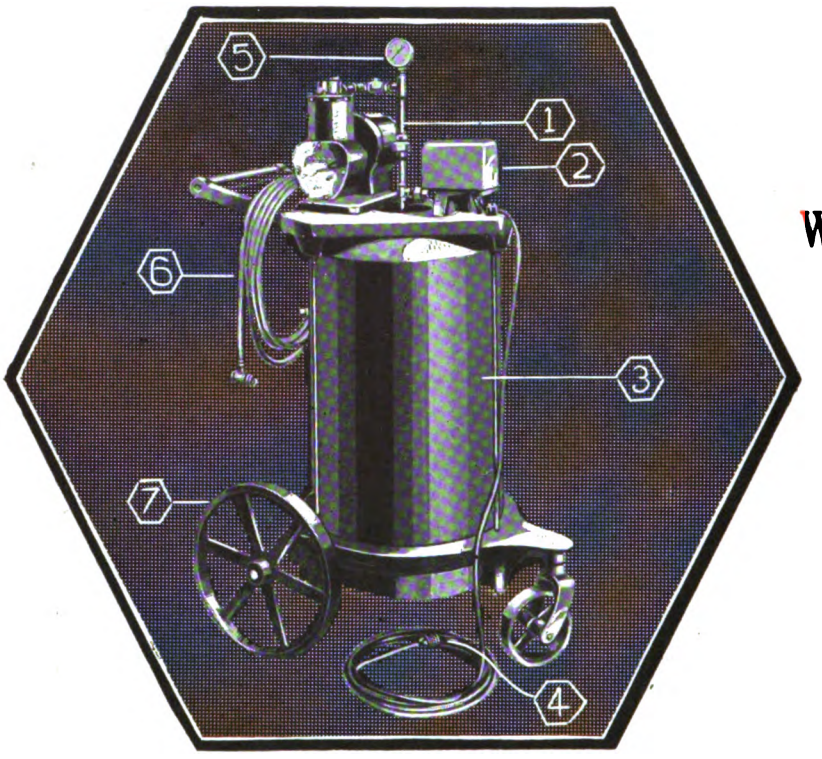
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Portable Tank and Pump

Air on Wheels

LECTROFLATER
ELECTRIC AIR COMPRESSORS

Note These Important Features

1. No. 2 LECTROFLATER Electric Air Compressor; the quickest, most economical and most powerful electric compressor of its size in the world. Will compress sufficient air to inflate ten tires at a cost of one cent for current—*one hundred tires for ten cents.* Guaranteed to pump only cool, clean, dry air. Grease—not oil—lubricated. No oil level to maintain. Air cooled by forced draught. No liquid to freeze or evaporate. All working parts self-contained under one housing. No exposed belting, shafts or gears.
2. Automatic Pressure Switch: Starts the compressor refilling tank when pressure drops under 130 pounds and "cuts out" when pressure reaches 150 pounds.
3. Welded and brazed in all seams. Tank tested to 300 pounds hydraulic pressure. Will contain enough air to inflate ten tires from 40 to 80 pounds pressure without refilling. Finished in green and black enameled with nickel trimmings.
4. To fill attach electric cord connection to any electric light socket; that's all. Uses either alternating or direct current. Pump controlled by automatic pressure switch. Fifteen feet of electric cord furnished.
5. Large accurate pressure gauge indicates pressure in tank at all times.
6. Twenty-five feet high pressure hose fitted with standard tire chuck.
7. Furnished with husky metal wheels for hard service on cement floors or with rubber tires for use on hardwood or tiled floors, sales rooms, show rooms, etc.

Rain or shine, indoors or out, in the garage or salesroom, on the curb, in the street—the Portable Tank and Pump, weather-proof and fool-proof, is always ready to pump cool, clean, dry air into needy tires.

When filling the tank it takes its power from the nearest electric light socket and automatically cuts out when full.

One tank full inflates ten tires (33x4) at a cost of one cent for current. That's cheap enough, and it does it quickly, too —one tire from flat to full in two minutes.

A great pump for you—it's staunch, well built and handsome in appearance. It will last you a lifetime.

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DEALERS, JOBBERS AND GARAGEMEN

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BALL BEARINGS
(PATENTED)



To attain leadership is an achievement —to maintain it in face of competition is a greater achievement still. And what folly can be greater than that which hazards a leadership by a short-sighted sacrifice of even one of the so-called minor details upon which achievement has been built? A business structure built through the years may be destroyed in a day.

The proved super-service qualities of "NORMA" Precision Bearings, revealed in the records of hundreds of thousands of super-service ignition and lighting apparatus the world over, have beyond question been vitally contributive to the consistent performance of these accessories.

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ALLEGHENY
WASHINGTON
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COUNTIES

December 22nd, 1917

A letter that speaks for itself

Selden Truck Sales Company
Rochester, New York

Gentlemen:

The writer wishes to express his sincere appreciation of the courtesy shown him by the Officers of your Company and the heads of the different departments.

It is a real pleasure to meet men such as you have in your organization, and I am only sorry that I did not visit your factory a long time ago.

As to your factory, I will frankly say that it was far beyond my expectations as to size and modern equipment for manufacturing motor trucks. I was amazed to see the number of trucks under construction at one time and the amount of stock that you have on hand in the line of parts.

Any man contemplating the purchase of a motor truck should without fail see a factory such as yours, and he will be thoroughly convinced that the truck is built by a concern that is reliable from all angles.

Again thanking you for the favors shown, we beg to remain

Very truly yours,

SPRING GARDEN AUTO & MACHINE CO.

Per Fred W. Kingsbacher Pres.



BEST SELDEN SERVICE ALWAYS



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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LV New York, U. S. A., Wednesday, May 8, 1918 No. 6

You Bought Him a Gun—Now Give Him a Sweater



The Red Cross will put on a drive for **$100,000,000** *the week of May* **20-27** *inclusive. You are going to be asked to give, not buy. You invested in Liberty Bonds, which will react to your own financial benefit, but NOW the appeal is to your heart. You are going to be asked to GIVE for the benefit of the boys who are carrying the guns you bought for them. Get your heart and your purse ready.*

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How One Dealer Is

Putting the Tractor Over

Williams Believes Car Dealer Should Sell Tractors
He Has Gone at the Business in a Real Way
He Sells Each Farmer What He Ought to Have
He Keeps the Tractors Running by Quick Service
He Carries a Stock of Tractors and Parts
He Sees a Wonderful Future for the Automotive Dealer

C. U. WILLIAMS of Bloomington, Ill., believes there is a big business for motor car dealers in selling cars, trucks and tractors to the farmer—and so he is doing it.

He is developing a big business in tractors. He sees great possibilities in the future. He believes real merchandising among farmers can build a big business, so he is merchandising in an aggressive way to his own great profit.

He tells how the motor car dealer can be a better tractor dealer than the influential man.

The C. U. Williams & Son Tractor Co., an unincorporated subsidiary of the C. U. Williams & Son Co., automobile distributer in Bloomington, has been in the tractor business only since December, 1917, but already the company is recognized as one of the most progressive and aggressive, as well as most successful, of the tractor-selling organizations in the State of Illinois.

Tractors are handled by the company at both wholesale and retail in practically the entire northern half of Illinois.

The C. U. Williams & Son Co. originally was incorporated at Bloomington on Feb. 14, 1912, for the purpose of selling automobiles. As the business grew and prospered the company ultimately became distributer of the Overland, with which nine counties now are covered. The decision to engage in the tractor business as an addition to the already prosperous automobile business was based upon practical considerations which appealed strongly to C. U. Williams, the senior member of the company.

"There were certain fundamental assumptions upon which we based our conviction that we, as automobile distributers and dealers, ought also to handle tractors, and which finally decided us to go into the business," said Williams.

Car Man the Logical Dealer

"Acquaintance with the trend of agricultural development assured us that *the complete motorization of the farm was not only a possibility but an inevitable necessity.* This appeared to us to open up tremendous trade possibilities for the man who might be expert with motors, who had the equipment to give the degree and amount of service which would be required and who had the ability to organize and administer a business of such magnitude as the motorization of agriculture would bring about.

"Also we believed that the tractor, the motor truck, the motor cultivator and other specialized self-propelling farm equipment, all were essentially nothing more than modified automobiles; hence we, as experienced automobile dealers, logically should handle them.

"In other words," continued Williams, "we were profoundly convinced that the logical and legitimate medium for the ultimate distribution of the tractor and all other sorts of motorized equipment, as well as for the specialized power operative equipment which must be used with tractors, *is the automobile dealer.*

The Reasons Why

"This for many reasons. First, he is not afraid of numbers; he is accustomed to carrying a stock of cars, accessories and repair parts adequate for the requirements of his territory; hence he is not likely to balk at putting in an adequate stock of tractors.

"We believed he would be the ultimate tractor dealer because he knows the automobile and has a clear conception of the qualifications which are required of the man who is competent to give satisfactory service on motors. Also he has the material equipment in his garage and repairshop, as well as the personal experience, to enable him to render the sort of service which will be required.

"These considerations appealed to us as respected our own qualifications for handling the tractor trade in a retail

Letter Inviting Dealers to Tractor Demonstration

We are writing to inform you that there will be a demonstration of an INTERSTATE TRACTOR at San Jose, Ill., on Monday the 22nd inst. This demonstration will be under the direction of our dealer there, Mr. Geo. B. Weimer, and he will be assisted by some of our representatives.

We are particularly anxious to have you go to this demonstration and take such people with you as are interested in a good substantial tractor, even though they are not immediate buyers.

We are doing everything we can to make this demonstration a success, and the only thing necessary will be the support of the dealers in the surrounding territory. We know the enthusiasm that is stirred up will help you, and our whole purpose in pulling off such occasions is to help the sale of the INTERSTATE TRACTOR.

Will very much appreciate your reply as to whether you can attend this demonstration, and we believe you would find your time well spent. Thanking you for consideration, we remain, Yours truly,

C. U. WILLIAMS & SON TRACTOR CO.

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When Williams wishes to get a sales start in a certain section he puts one of his tractors at work and invites the farmers and dealers for miles around. He puts a farmer on the seat, teaches him to operate the machine and thus demonstrates to all the onlookers that it isn't difficult for the farmer to take hold of operating the tractor

way in our immediate vicinity, and we could see no reason to doubt their validity if we applied them generally. *These were the reasons which decided us to go into the tractor business both in a retail and a wholesale way.*

Got Good Line

"Our first consideration, as it must be that of every firm which engages in the tractor business, was to select a line of tractors which best would meet the agricultural conditions and needs of the territory we intended to cover. We have done some experimenting and we have made some mistakes no doubt, but we have settled down upon at least a part of the line we shall continue to handle.

"We represent the Lauson tractor over a considerable portion of the northern half of Illinois. In a territory not exactly alike we represent also the Plow Man and the Plow Boy tractors. In a territory which practically comprehends the other two we sell the Jim Dandy motor cultivator. We still have need for another tractor of two-bottom capacity, which we shall add later.

"In order to secure proper management of our tractor business we decided to divorce it entirely from our automobile business. Therefore we organized a subsidiary company, the C. U. Williams & Son Tractor Co., and further subdivided this latter company into two distinct departments, wholesale and retail.

"Three separate sets of books are kept, and it is possible for us at any time to tell just exactly how each department of the business stands. My son, Walter W. Williams, who is an expert motor mechanician, was my able assistant in perfecting this organization. His country called him, however, and to-day he is master signal electrician at the Government post at Rantoul, Ill. This leaves me as the executive head of the three departments of my business and makes of me some busy man. It has made imperative the hiring of competent men.

"In seeking dealers we always try to get the automobile dealer. In the smaller towns 90 per cent of the men in the automobile business came from the farm, know its needs, understand the personality of farmers and talk the farmer language. They understand motors and the application of the motor to farm equipment. Likewise they usually are the only men who have the equipment for giving service. In addition, we always try to secure that man who has given evidence of the possession of business ability.

Selling the Dealer

"We go to these men and we say: 'You have the plant and the motor experience. *Your overhead is practically a fixed amount and you easily could do more business without increasing it.* The tractor offers you the opportunity. Put a tractor on your floor and increase your volume of sales for the year by from $10,000 to $20,000 without materially increasing your overhead.

How Williams Keeps Interest of Employees

We have planned to have an OUT-OF-DOOR DEMONSTRATION AND EXHIBIT SATURDAY, APRIL 27th.

If you are a shop employee, you may think this will be of no special interest to you, but we are going to get this information to every one, so they can tell their friends and talk it to everybody they see, so we will get the full benefit of the entire organization in the line of "word-of-mouth advertising."

If you tell ten people of this Out-of-Door Exhibit and they each tell ten more, there will one hundred people know of it, and you are the cause of this information. If fifty of you do this, you can see how many people will know of this without any burden whatever or expense on the house. Do your best to spread this news.

We are going to have 16 or 18 Overland cars on the street, one of each Model. They will be backed up along the curb between East and Prairie St. on Washington St. There will also be a line of Tractors and a Motor Cultivator. The Cultivator will be driven. There will be considerable doing. The only thing necessary is that you do your part toward spreading the news. Talk it to everybody you meet. This together with good weather will make the day a success.

Hope you will do your part.

Yours truly,

C. U. WILLIAMS & SON CO.

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Salesman..... **MY WORK TO-DAY** *Date*.....

ASSIGNMENT			REPORT	
PROSPECT'S NAME AND ADDRESS	NOTATIONS LAST CALL / MODEL	Length of Call	Next Call	RESULTS

This is the record that gives Williams every day a summary of the day's work of his tractor selling organization

"'*Sell also the special power implements which must be used with the tractor*, particularly the engine plow, for the reason that fully 80 per cent of your tractor sales will carry a plow sale. Why sell the tractor only and let the other fellow sell the plow? Your past experience on the farm gives you all the specialized knowledge you will require to take care of the plow, and if it does not we are only a short distance away and our expert facilities are at your service.

"'We also carry a complete stock of repair parts and accessories, and you will not be compelled to make a customer wait for something while you send to the factory. Our service is prompt and accurate. By taking on a tractor you are putting yourself in line for a tremendous trade which surely will come.'

"We say to them also: 'Subscribe for trade papers which tell you about tractors and then read them carefully. If possible, visit tractor factories. If you cannot do that come to Bloomington frequently and spend some time with us. Read up on tractors—read everything you can lay your hands on and gain as clear a conception as possible of the possibilities of tractor employment on the farm. Particularly study up on your competitor's tractor, for it as necessary for you to know all about that as it is for you to know all about your own. Then go to it.'

"I have said we try to show prospective dealers the proportions of the trade they will open up by adding tractors to their line. Did you ever think how tremendous this is? It is so vast the mind almost refuses to grasp it.

Hundreds of Prospects

"*We consider every farmer who farms* 100 *acres or more a tractor prospect.*

"If he is not an active prospect now he can be developed into one. After he has bought a tractor he will realize that he cannot thereby dispose of his horses; he must retain enough to cultivate his row crops, for the three or four-bottom tractor cannot ordinarily be used for that purpose, and he needs some horses also to do his hauling.

"As the idea behind motorized farming is the attainment of economy in operation, the farmer very soon realizes that he must motorize further, and we figure that at least three-fourths of the tractor purchasers will become prospects for the motor cultivator.

"With the motor cultivator he cultivates his row crops, and with the beams removed he has a practicable power unit for pulling his binder and his manure spreader and for taking care of all the mechanical operations in his hay field.

"*Obviously, the motor truck with the dump body to do his hauling comes next, and the farm is completely motorized.*

"Motor trucks on the farm Not many yet, but a good many of our best farmers are considering them seriously, and they are bound to be in demand soon.

Sales of Farm Equipment

"Then there comes up the certainty of the individual ownership of power-driven equipment—the small grain separator, the silo filler, the corn sheller, the hay baler and all the other machines which are operated by belt. Advantage and economy dictate individual ownership of all these things, *and ultimately the dealer who sells the tractor will sell them also.*

"Take our own case, for instance. We sell the tractor, the motor cultivator, the engine plow and the motor truck. We intend taking on the small grain separator, the silo filler and other power-driven equipment just as rapidly as our trade develops up to it.

"*As I see it the day of the general line implement dealer is passing. Soon there will be nothing but power farm machinery in demand and the dealer who sells the tractors—and we believe this will be the automobile dealer—will sell all these other power machines, and will thereby become the mechanical outfitter for the farm. See what wonderful possibilities lie in the future?*

How He Does It

"In handling our retail tractor trade we go at the matter systematically. I have said that we consider every farmer of 100 acres or more an actual or potential prospect for a tractor. *We take township maps of our territory and make alphabetical lists of every farmer in every township who farms* 100 *acres or more.* This list then is systematically covered by mail and is canvassed systematically by our canvassers, who spend all of their time in the field calling upon prospects who are known to be active, or in developing new ones.

"When the canvasser leaves the salesroom for his daily trip he takes the names of as many farmers as he is likely to see in a day, part of them men already on our active card index of prospects, and the names of undeveloped prospects in the same neighborhood.

Cut Out Time Waste

"*These are arranged geographically so that no time is wasted in making the calls.* At night, upon his return, the canvasser makes a complete report covering his day's work, using a blank of the form shown herewith.

"One of the office employees then enters each prospect reported on two cards. One, form No. 1, shown herewith, goes into a tickler file and comes up on future dates for follow-up.

"The other card, No. 2, also shown, goes into a permanent office file in alphabetical order, and on it ultimately will be found the complete record of the sale. In addition to using these card files ourselves we try to induce our dealers to adopt the same system.

Giving Real Service

"We carry a large stock of tractors constantly on hand, a line of tractor accessories and a complete stock of repair parts. We draw upon this stock for both our wholesale and retail trade. Nor do we hesitate to rob a stock tractor when there is imperative need for a part and we do not happen to have it on hand. We take it that we better can afford to take the risk of waiting while the part comes from the factory than to force our customer to lose his time waiting its arrival, when delay of any kind may be critical or serious for him. We aim to keep every tractor we sell continuously working. We keep two expert repairmen and two cars constantly ready to respond to calls, and we give personal expert attention to any trouble anywhere within 50 miles of Bloomington. In short, we make our service a dependable feature of our business policy.

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"We extend our idea of service to recommending the type and size of tractor a farmer buys. *We investigate his needs and insist upon his buying an outfit which corresponds. We will not allow him to buy a tractor from us which obviously would be a misfit on his farm.*

"To make a sale of an outfit which does not correspond to the conditions it will have to encounter just because the farmer thinks he wants that particular outfit, or just to make a sale, is, in our judgment, mighty poor business policy. We intend every sale to be satisfactory, not only for the sake of the man to whom the sale is made, but because of its effect upon other prospects in the neighborhood.

At It All the Time

"Sometimes we make mistakes in fitting the tractor to the job, and we do not realize it until after the tractor is at work. However, when this happens we rectify it at once, no matter at how much trouble to ourselves. We have in a number of instances exchanged tractors or plows in order that the customer might be perfectly satisfied.

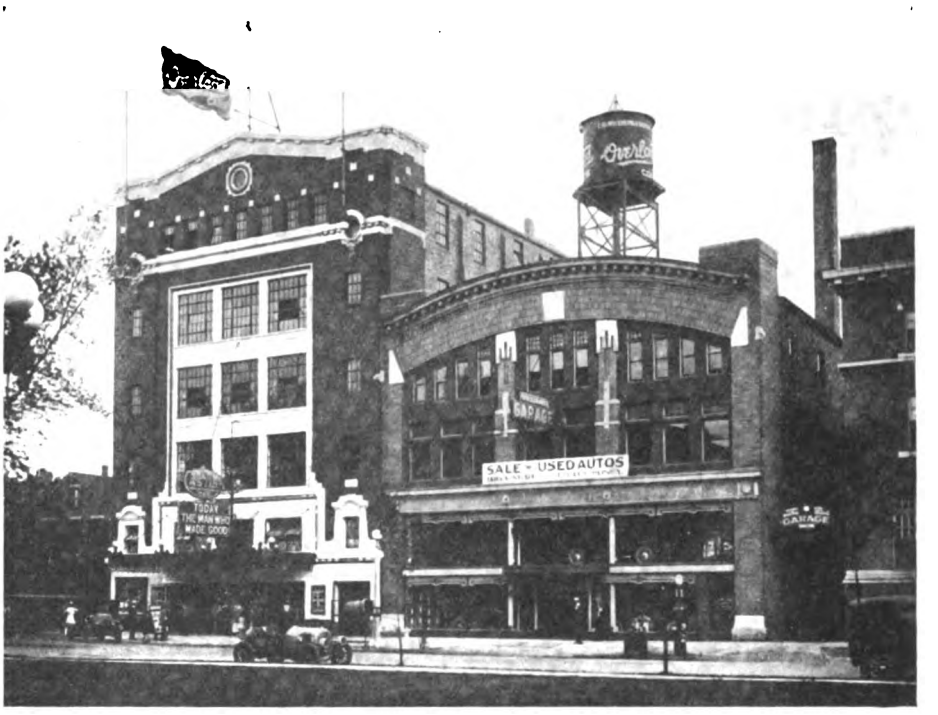
"Our selling campaign never falters for a day. Every working day of the year something leaves this office in the way of advertising or follow-up. We believe in activity during the off season. *If we don't keep busy then we find when the active season opens that some one else has been working while we loafed.* Thus we never let up.

"For instance, we are campaigning actively now ourselves, and are helping our dealer agents to campaign for tractor sales for delivery in July and August, when they will be needed for fall plowing and belt work.

Gives Demonstrations

"Probably our best means for inducing sales is the practical demonstration. We are committed to this as having the greatest influence upon the prospect. Commencing very soon, we shall give weekly tractor demonstrations upon a piece of land we have secured just outside of Bloomington. To these demonstrations we shall invite the farmers who live within our retail sales territory and also the dealers from our wholesale territory. Also we constantly are arranging for and assisting at demonstrations under the immediate direction of one of our dealers. To these we always send one or two of our representatives and, in addition, we extend a special invitation to 50 or more of the surrounding dealers to be present.

"In the case of these dealer demonstrations we rely upon the dealer in every instance to get his own farmer prospects to attend. We tell him how to go about making his arrangements and then we put it up to him. Several days in advance of a dealer demonstration there goes out from this office a processed letter, filled in, to as many dealers in contiguous territory as we think it advisable to invite, asking them to be present. The results at such demonstrations as we already have held this spring have been very satisfactory.



This is the Williams building in Bloomington. It is next door to a theater, a fine location. The business has been built by consistently aggressive methods

"Our San Jose demonstration was typical. Attendance was somewhat smaller than usual due to the fact that the demonstration was postponed once or twice on account of rain and again on the morning of the twenty-fourth it was threatening. This adversely affected the attendance of both dealers and farmers, especially dealers.

"The San Jose demonstration was confined to the Plow Man tractor, two models being operated, and was given on the farm of John Deers, one mile east of San Jose, under the auspices of George B. Weimer, automobile-implement dealer at that place.

"A Janesville engine gang plow of three 14-in. bottoms was used. The outfit was worked continuously all day, one of the employees of Weimer and John Deers himself alternating at the throttle. This was to make the conditions of the demonstration conform as nearly as possible to actual field work. In fact, it was actual field work, since the farmer himself operated the tractor and the field he plowed was in preparation for corn planting.

Taught the Farmer

"The forenoon was devoted principally to tuning up the tractors, of which there were two, and in scouring the plows. A representative of the Janesville Machine Co. was present to insure the proper hitch and set of the plows and to insure satisfactory results. During the forenoon also, the farmer, who was trying for the first time to operate a tractor, was given practical instruction in its operation. So tractable did he prove to be that long before the noon hour he was taking the outfit around the field and doing most excellent work.

"Soon after noon neighboring farmers, some of them coming from quite a distance, began to arrive, all in automobiles, and each automobile carrying from two to four interested observers. At no time during the day were any great numbers present at any one time, as most of them had too much work at home to be long absent, but all the afternoon they continued to come. Interestedly they followed the tractor around the field, talking learnedly and technically about soil conditions, commenting knowingly upon the quality of work the outfit was doing and intelligently discussing the mechanical construction of the Interstate tractor and others. The interest manifested was not merely curious; it was essentially practical.

Netted Two Sales

"Incidentally, it might be mentioned that the demonstration at San Jose netted two sales for Weimer—one to the farmer upon whose farm the demonstration was held, the other to one of the prospects who came to observe and remained to buy."

This, too, is the sort of thing the C. U. Williams & Son Co. is encouraging and promoting throughout its territory. On the same day the San Jose demonstration was held two other similar events were put on at distant points in the territory. It is the purpose of the company to give at least one demonstration at every point where the company has local representation.

Including both organization, the automobile and the tractor, the C. U. Williams & Son Co. employs about 50 men. Well conceived and executed plans are pursued to keep the organization inspired with an esprit de corps which is productive of real results in sales.

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When and How to Use a Lawyer

By Harry J. Hibschman

Select a Lawyer

1—Who knows law
2—Who knows human nature
3—Who knows your line of business
4—Who is businesslike
5—Who is worthy of your confidence

JUST as the present war began a New Yorker was walking down a street on the East Side with an English friend of his, when they passed a beggar who was minus both arms and both legs and presented a pitiful appearance. The American gave the beggar a quarter and then asked him how he got hurt. When he answered that he received his injuries in a mine accident, it was quite apparent from his speech that he was a native of Germany. Immediately the Englishman gave him a dollar. This surprised the American to such an extent that he made some remark about his friend's liberality and asked why he gave the cripple such a large amount.

"Well," replied the Englishman, "I don't mind telling you that he's the first German I've ever seen trimmed to my taste, and I was just expressing my appreciation."

When one speaks of lawyers to the general public, one expects to encounter an attitude similar to that of the Englishman quoted above. As one man expressed his answer to the question suggested at the top of this article, "Boil him in oil, and do it as quickly as possible."

Choose Right Lawyer

In spite of this general attitude, or perhaps to some degree because of it, the writer believes that it would be profitable for business men to give thoughtful consideration to the subject suggested.

In that connection the first thing to be determined is the kind of lawyer one should use.

Of course, the fact that the Supreme Court has granted a man permission to practice if he can get anything or anybody to practice on, is no sign that he is a lawyer. The court only professes to license attorneys and counselors-at-law. The lawyer's license comes from the Lord in the shape of certain natural gifts and from within himself by reason of hard work, experience and perseverance.

The real lawyer of the present day is a man of varied qualifications, and it is wasteful to employ any other.

To begin with, a lawyer needs to be versed in law. That is the first requisite. But at the same time it does not mean that he must be able, offhand, to answer at a moment's notice any question that may be asked him by a client. It means rather that he shall have a good, broad knowledge of the principles of law and the knowledge and training enabling him to use the books containing the many thousands of decisions upon which the solution of legal questions in the final analysis depends.

Next in importance on the part of the lawyer is a knowledge and understanding of human nature, for, after all, the personal equation is a decisive factor in most of the matters in connection with which a lawyer's aid is required. How, for instance, can a lawyer measure judges, jurors and witnesses in the trial of your cause unless he has had a wide experience with men and actual contact with them? Or how can he advise you reliably concerning a business deal unless he can measure it by the law of human conduct as well as by legal principles?

Two Examples

Two examples occur to the writer of the idea he has in mind. In the trial of a certain case a witness had testified to the exact time of a certain occurrence which it was important to fix precisely. On cross-examination he was asked how he was able to fix the date, and answered that he made a record of it at the time.

"You keep a diary then, do you?" inquired the attorney.

"Yes, I do," said the witness.

"And before you came to court I presume you examined your diary and positively fixed this date," suggested the lawyer.

"I did," said the witness.

"Of course," continued the lawyer, "in keeping a diary you make a complete record for the day in the evening of any particular day, don't you?"

"I fill out each day's page the last thing before I go to bed every evening," said the witness.

"Is there not a possibility," insisted the lawyer, "that some days you overlook making your notes and that then you do it the following day or even later?"

"None whatever," emphatically replied the witness.

"Where is this diary?" asked the lawyer.

"At my home," was the answer.

"But you are positive," again asked the lawyer, "that you make each day's entry each day, and that if the book were here it would show that you were in Chicago on the day in question?"

"It surely would," answered the witness. "I must have put the fact down in my diary that evening, right in my room in the hotel in Chicago."

"Please bring that book to court this afternoon and let us see it," requested the lawyer.

In the afternoon it was produced and the entry for the day in dispute read: "Oct. 10—In Chicago, buying machinery. Returned home *the next day*."

Of course the last expression absolutely discredited the testimony of the witness.

Afterward the lawyer was asked whether he was not taking quite a risk in having the book produced, as it seemed likely that it would strengthen the testimony of the witness.

"Possibly there was some danger," was his reply; "but I figured that no man of his general characteristics would fill out a diary before he went to bed on a visit to Chicago. My guess was that his mind would be too muddled or too filled with other things to allow him to look after a thing like that."

Haste Creates Suspicion

The other incident involved a real estate transaction. The agent had been instructed by one of the parties to leave the abstract of title and the deed with the latter's attorney. When the agent handed them to the attorney he said: "Moyer wanted me to leave these with you. Wish you would rush them so we can close the deal this afternoon. I know the title's all right. The First National Bank made a loan on it only a few weeks ago; so, of course, it must be."

The abstract was apparently without a flaw, showing title to the property in a man by the name of Bert W. Knowles. The deed presented had been signed and acknowledged the day before by Bert W.

And Then

1—Use him *before* you get into trouble
2—Pay an annual retainer
3—Consult him often
4—Be frank with him
5—Trust him

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Knowles and Mary E. Knowles, his wife. Nevertheless the attorney telephoned his client to come to his office; and upon his arrival the lawyer asked him why there was any need of closing the deal that afternoon. The client replied that he knew of none. He had paid a thousand dollars as earnest money and could not refuse to complete the purchase.

"If that's the case," said the lawyer, "I can't understand why that agent wants to rush it through. But I have a 'hunch' that there is something wrong. I may be foolish, but I don't want you to close that deal to-day. Put the blame on me. Tell them I didn't examine the abstract."

The lawyer went to the notary public who had taken the acknowledgment for the deed and asked him whether he knew Knowles. He said he had never seen him until the day before, when the real estate agent who was handling the deal with Moyer had brought him and his wife into the office and introduced them. The notary said he had known the agent a long while, as they had offices in the same building; but the notary did not think he had ever taken any acknowledgments for the agent before.

Secured Description

The lawyer then got a careful description of Knowles and his wife; then he went to the bank through which the mortgage transaction had been handled. There he learned that Knowles lived in a different locality, and the description he received was so different from that given by the notary that he became convinced they were not the same parties.

The next day the agent and the man who had signed the deed were arrested on a fraud charge, and Moyer got back his money. The value of the lawyer's services lay in the fact that his experience with men had developed a keenness of mind that led him to suspect something was wrong merely from the slight impatience of the agent, when there was no apparent reason for haste.

Of course a lawyer to be of real value to a business man should be familiar with business affairs and business methods. He cannot be of real assistance, for example, in forming a corporation to engage in a certain line of endeavor unless he has some conception of what other similar concerns are doing. The proper application of the legal principles with which he may be very familiar can only be made if he understands the nature of the business and the methods used to conduct it.

Should Know Bank Bookkeeping

In court he is but a poor representative if he lacks in these respects. Take him in a case involving the books of a bank. How can he present his case if he has no knowledge of the methods of bookkeeping employed by the banks? The writer has a vivid recollection of an argument made a few years ago by a lawyer in a certain case to the effect that on a certain day his client had more than five hundred dollars in a certain bank. In support of his contention, the lawyer offered a statement prepared and furnished by the bank. It showed a balance in the amount claimed, but it showed the balance as an overdraft; and the lawyer was too ignorant of bookkeeping to realize that fact.

Then the lawyer to be employed must be a man of character. He must be a man who uses business methods in his work; and he must be able to do creditable trial work.

Should Be a Good Business Man

Particularly should it be emphasized that it is a mistake to employ a lawyer who conducts his business without the same system that a good business man in any other line would consider essential. The lawyer's work requires the doing of many things for which the law fixes a particular time. Thus, after a suit is started an appearance must be entered within a given time. If it is neglected, a default may be entered and the client's opportunity to present a defense lost. Or it may be important to prepare a transcript on appeal within a certain time. Failure to do so, forfeits the right to appeal.

Examples without end could be cited. But to any reader who will only think for a moment, no further citations are necessary. He need only apply the same tests in this respect to a lawyer that he would to any one else he wished to employ. Would he employ as a manager in his business, for example, a man whose desk was covered with a disarray of papers and unfiled letters, who failed to keep appointments, who was guilty of losing valuable papers, and who neglected to do things when they should be done? If not, then let him apply the same tests to the man he employs as a lawyer, for the mistakes of the latter may not only be expensive; they may be absolutely ruinous to one's business and destructive of one's reputation.

Having selected a lawyer who is worthy of confidence, the business man may well consider how he should use him.

Forestall Trouble

The writer's suggestion is almost trite: Use him before you get into trouble.

Every day brings proof into a lawyer's office that this is absolutely the best advice that can be given on the subject. Every day brings examples of the cost of failing to follow this simple and sensible suggestion.

The writer recalls a case in which a bank advanced money to a corporation for the purchase of machinery bought under a conditional sale contract. Payments were made as the installation of the machinery proceeded until there was only a balance of a thousand dollars due. Then the bank paid this amount direct to the vendor of the machinery and took an assignment of the contract, which, in the usual manner, reserved title in the vendor until the full purchase price should be paid. This contract, assigned to itself, the bank held as security for the entire amount advanced to the corporation, nearly ten thousand dollars. Later a receiver was appointed for the latter, who contended that the lien of the bank was limited to the thousand dollars due the vendor at the time the contract was assigned to the bank.

The matter was taken into court, and the receiver's position was sustained. The bank lost nearly eight thousand dollars by its failure to take enforceable security, which could easily have been obtained at the time it took the assignment of the vendor's contract. The officers of the corporation could and would have executed a mortgage without hesitation at that time.

Another case recently decided by the highest court of one of our states illustrates how easy and cheap it would have been to prevent the loss of a substantial sum of money. A real estate broker listed a piece of property owned by a man by the name of Holmes. In the state in which they lived and in which the property was located, there is a statute which provides that a contract for the payment of a commission for the sale of real estate is valid only if in writing. Holmes signed a contract for the sale of "16 lots in block 10 of the original town of ——;" and later the agent found a buyer, and the deal was closed. Holmes failed to pay any commission, and the agent sued on his contract. His case was thrown out of court because there were twenty-four lots in block 10, and the contract was insufficient under the statute, as the lots which Holmes intended to list could only be determined by oral evidence. The same point had been decided long before this particular contract was made, and any real lawyer could have drawn a binding contract for the agent, one that would have protected him.

Annual Retainer Best Arrangement

The writer's opinion is that the most satisfactory arrangement that can be made between a business man and his lawyer is one providing for an annual retainer in consideration of which the lawyer's advice can be asked at any time upon any subject connected with the client's business. Extra charges are contemplated, of course, for litigation.

Under such an arrangement when the client is in doubt he can turn to his telephone and frequently avoid costly mistakes by a few minutes' talk with the attorney; and he can have his contracts and other documents passed upon before spending money by virtue of them.

The writer recalls a striking illustration of the idea he is trying to impress. He had an arrangement like the one mentioned with a bank. One day the cashier telephoned him and said: "Walters, the automobile man, is asking for a loan and offers as collateral security two notes. The first is to be executed to-day by Jones, the broker, and the other is secured by a conditional sale contract under which Dr. Wilson bought an automobile. We know Jones is poor pay, and we are wondering how to protect ourselves on the Wilson note."

"So far as the Jones note is concerned," said the writer, "just make it payable at his own bank. He is slow, but he usually has money on hand, and the note made payable at his bank will be good as a check. As to the Wilson note, if you

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take that as collateral you must also take a bill of sale from Walters for the car, subject to the contract of sale."

After some further discussion the matter was arranged as suggested.

On the day the Jones note became due, he paid no attention to it; but a few minutes before the close of the bank, the note was presented at the one where Jones kept his account and where it was made payable, and payment was demanded as of a check. The paying teller refused to honor it, but admitted that Jones had more than enough money to his credit to pay the note. The matter was taken up with the cashier and other officers; the bank's attorney was consulted, and the note was paid.

With reference to the Wilson note, the writer's advice was based on a case in which a vendor under a conditional sale contract had taken notes representing the balance of the purchase price; and he had used these notes as collateral security, without even telling the bank where he used them that there was a conditional sale contract in existence. Later he paid the bank and recovered the notes; and still later he tried to replevin the article covered by the contract, an automobile. He lost his suit because the court held that the use of the notes as collateral security constituted an election to look to the notes rather than to the provisions of the contract and was a waiver of the latter.

The fact is that a reliable lawyer should be used by every important business man or corporation as a part of the concern. His advice should be freely sought, and he should be kept in close relation with the business.

In that connection it must be emphasized that to use a lawyer to advantage one must be frank with him. He cannot give an opinion worth following unless he has all the facts.

The writer recalls in that connection with chagrin how he advised a man some years ago that he could undoubtedly recover a certain piece of real estate upon the facts stated, only to be confronted later in court with an unrecorded quitclaim deed signed about six years previously by his client, about which, of course, the latter had remained absolutely silent.

It is hard to understand how men expect to gain anything by hiding facts from their lawyers; or how they hope for success in litigation when they deceive the very men upon whose skill and knowledge victory must depend.

The proper directions for using a lawyer in litigation can be summed up in eight words: Tell him, help him, trust him, obey him.

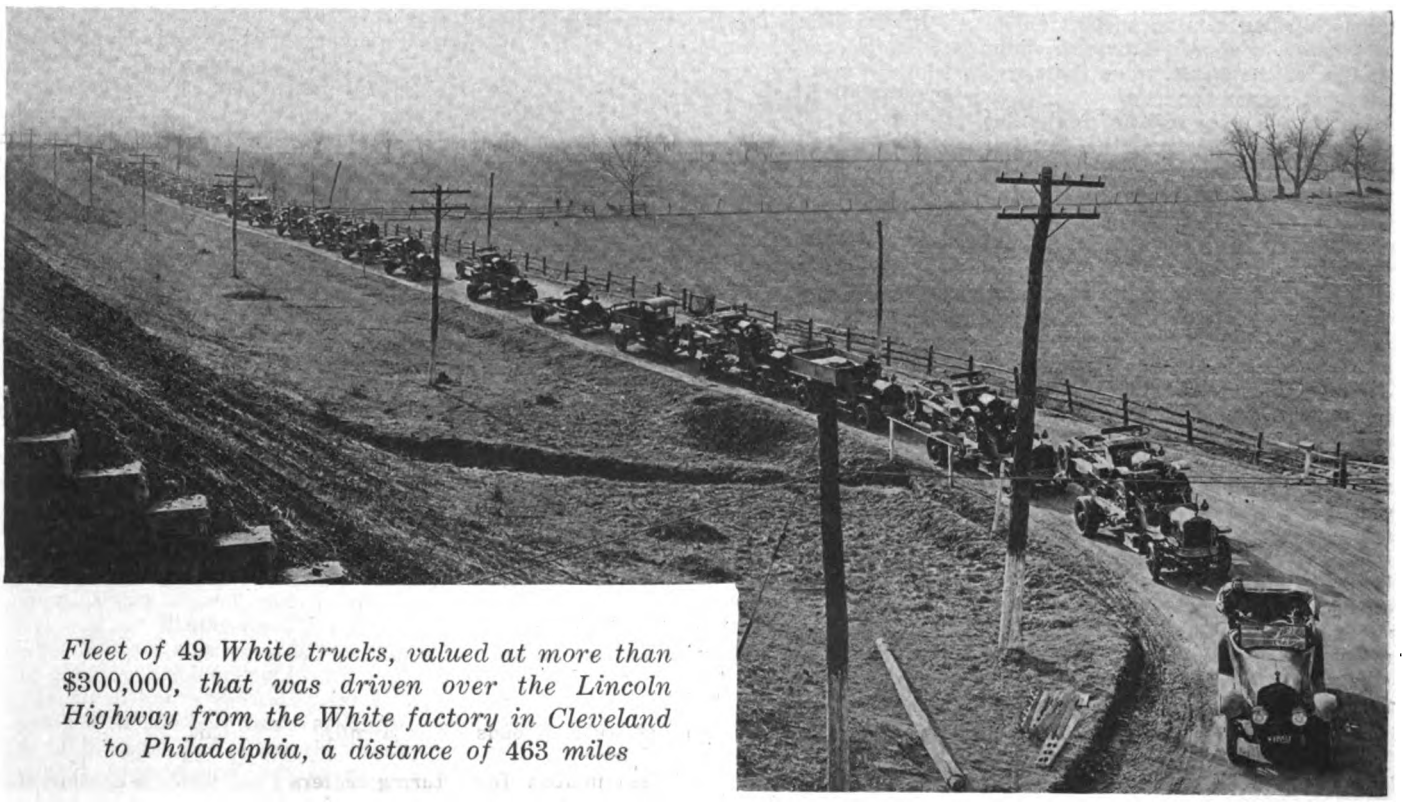
After you have given him the facts frankly, find out what more you can do. Then do it. Witnesses may have to be located and brought back; papers and letters may have to be produced; additional evidence may have to be unearthed. If so, do your part under your lawyer's directions. Then trust him.

Don't imagine that you have to tell him over again each day what the facts are. It is his business to know your case better than you do after you have given him the facts once. Tell him anything new that you discover, but don't annoy him with "vain repetitions." Neither imagine that he is not taking care of your case if he doesn't report its progress every day. Many things happen in a case before it is ready for trial that are of no importance so far as the final result is concerned, and that no one but a lawyer really understands. It is not necessary that the client should be accurately informed continually regarding these details. He has a right to assume that his lawyer will take care of the case after it is entrusted to him. If the client cannot act on that assumption, he should retain another attorney.

Finally, in the trial of his cause, every man must be willing to trust the conduct of the case to his attorney. If he cannot do so, he has either made a poor choice or he is not a desirable client. Let him remember that the lawyer is supposed to know how to protect his client's interest and how to conduct his case. Let him refrain from dictation.

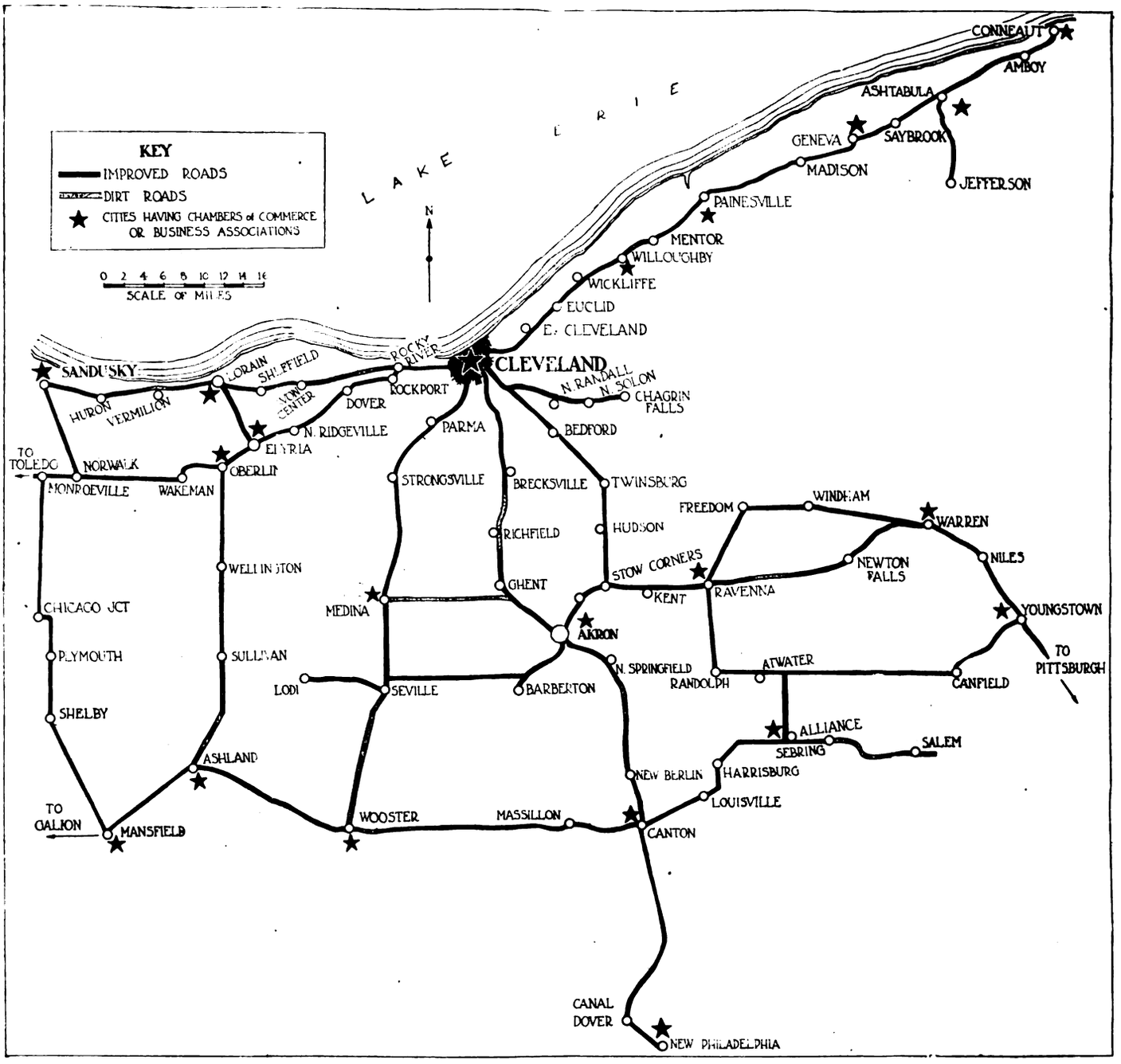
Some of the saddest incidents one sees in court occur when the client's insistence causes a course of action that the attorney's judgment opposes. Thus an important case involving a man's liberty was lost because he insisted that his attorney should ask a witness for the state whether or not the person he saw coming out of a building that had been robbed had a mustache. He answered without hesitation that the man he saw wore a mustache. The client was smooth-shaven and thought himself very clever in compelling his attorney to ask the question which brought such a response. Instead the result was to give the prosecution a new clue, and the next morning a barber was produced who testified that he shaved the defendant, removing a mustache, the day after the day of the crime. This made identification certain that before was very weak.

To sum up the entire matter, use the same judgment in hiring a lawyer that you use in hiring any one else. Get one who is qualified and dependable, use him before you get into trouble; but if you are compelled to go to court, tell him the whole truth, then help him, trust him, obey him and back him to the limit.



Fleet of 49 White trucks, valued at more than $300,000, that was driven over the Lincoln Highway from the White factory in Cleveland to Philadelphia, a distance of 463 miles

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Map of Ohio showing the large industrial centers now being served by motor trucks, and the class of roads over which the vehicles must run. The stars indicate the points at which return load bureaus may be established

THE State of Ohio is taking active steps toward the perfection of a return loads system which will go far toward relieving freight congestion, increasing the use of motor trucks and greatly multiplying the possibilities of selling trucks within the state.

Ohio has now no return loads bureau. However, the first steps toward the establishment of such a bureau were taken early in March when a special sub-committee of the Ohio Defense Council was formed to work out the development of motor truck transport in Ohio as a war measure. Since that meeting, however, not a great deal has been done in developing the system. J. G. Young, who is secretary of the committee, plans first to work out a simple return loads bureau in Columbus, and with this in operation to extend the system to other cities.

Ohio Needs Return Loads Bureaus

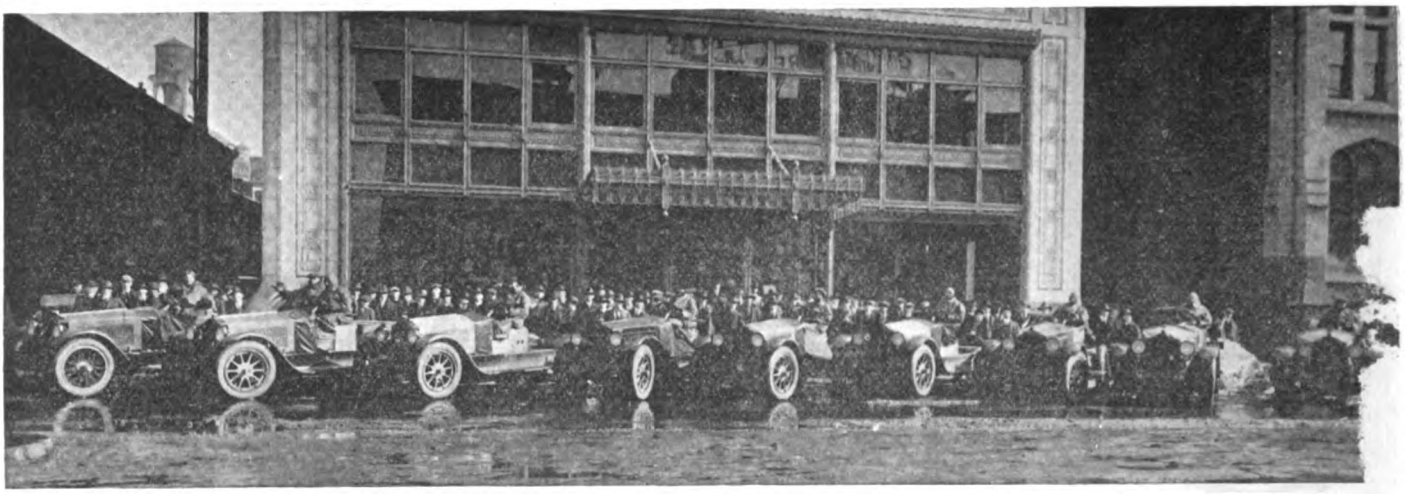
Both east and west of Cleveland, which is the largest manufacturing center in the state and has more motor trucks bringing goods into and taking them out of its confines than any other, with the possible exception of Akron, there are a dozen important centers where return loads bureaus might be established. Yet there is not a single bureau. This, despite the fact that practically all of these centers are connected by some form of improved roads.

Cleveland itself has no return loads bureau, though an analysis made recently shows that there are approximately 100 trucks in service to and from Cleveland at this time, and approximately 100 more which could be quickly transferred for haulage between this center and nearby points.

About 1500 tons of freight daily are being carried by these 100 trucks from such points as Akron, Youngstown, Canton, Sandusky, Conneaut, Ashtabula, Alliance and Mansfield. Few of these are carrying full loads in both directions. The establishment of return loads bureaus in these cities would make it possible to almost double the present tonnage carriage without the addition of further equipment.

That the State of Ohio should have a state-wide return loads bureau organization admits of no doubt, for the state has a large number of important manufacturing centers from which a considerable tonnage of goods is shipped in and out.

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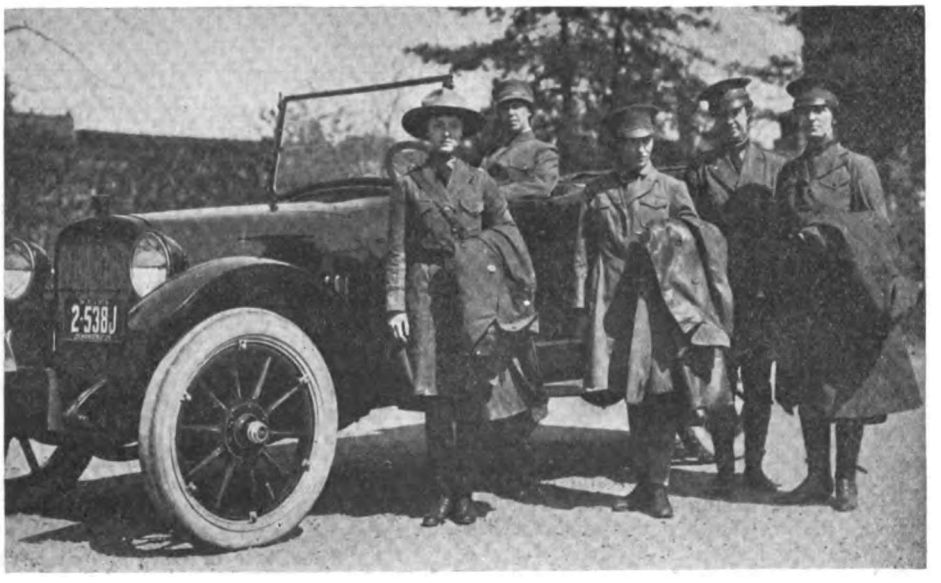
Packard trucks carrying passenger chassis arriving in New York after a drive from the factory in Detroit

Getting Cars In Over the Road

Some Dealers Make One Car Tow Another—Others Double-Deck Them, and Two Firms Are Using Girls

WITH the freight situation remaining almost as completely tied up as it was a month ago, dealers in New York are driving cars in from the factories in constantly growing numbers. Although there have been increased deliveries of cars this week from lots shipped a long time ago, the general opinion prevails that there is little or no improvement in the movement of freight.

In the first place, only a small allotment of freight cars is available at any time for shipping cars, and there is no certainty as to when they will be delivered. Another drawback is the fact that practically no cars can be delivered close to the city. They are dumped at Dover, Albany, Elizabethport and various points from 10 to 50 miles away and have to be driven in from there. As no decided improvement can be looked for this summer several of the larger dealers have organized regular crews with captains, road inspectors, etc., and are bringing in from 75 to 100 per cent of their cars by road.



These girls drove a fleet of Chandler cars from Cleveland to New York. The photograph was taken in Central Park after the finish of the run, and they do not seem to have suffered much from the ordeal

Since the snows, the roads in general have been pretty good. There are bad stretches here and there, but these do not represent a very large percentage of the distance. One particularly bad stretch is from Gettysburg to Philadelphia. Some of the cars have been making a detour south from the Lincoln Highway at Gettysburg to Baltimore and from there on up through Philadelphia and Trenton.

The route that seems to be reported in the best shape for the whole distance is the one along the southern shore of Lake Erie, through Cleveland, Geneva, Westfield, and turning there to Hornell, Elmira, Binghamton, Liberty, Tuxedo and Hackensack.

To Employ Canadian Route

Another deviation from this route continues on from Westfield to Buffalo and into the city through Albany, or Buffalo can be avoided by turning off at Batavia and using the remainder of the route through Liberty. Now that the snows have disappeared, the Canadian route from Detroit and the Michigan cities will be largely used. It is fully 200 miles shorter, and the roads are in very good shape. In making use of this route, it is necessary to have a pass and papers to show to the customs officers when entering Canada and again when entering the United States at Niagara Falls.

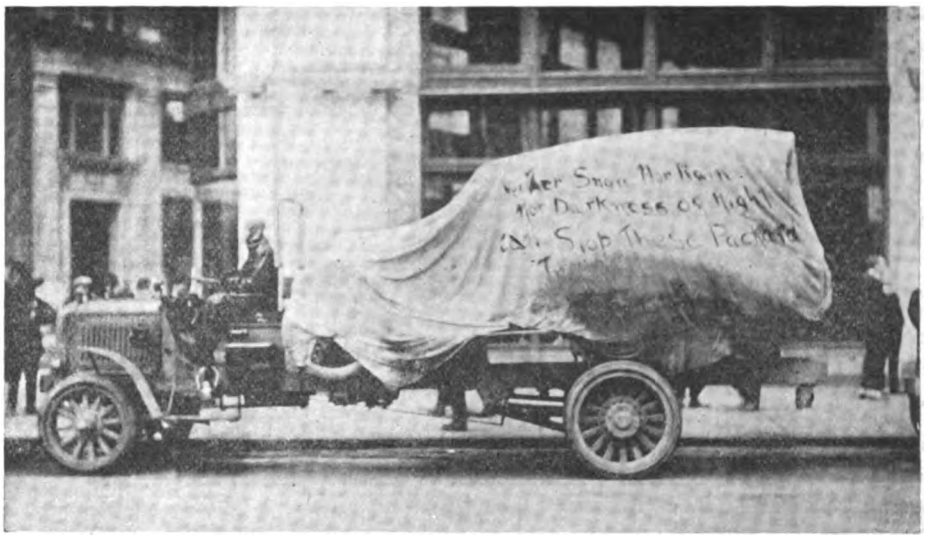
As soon as the lake boats start to run for the summer many dealers will make use of them for a part of the distance. Boats run from Detroit to Erie and to-

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Buffalo, and this will cut down the driving distance considerably.

The necessity for driving cars in from the factory has brought about a demand for a class of employees not hitherto much employed by the dealers. It is either impossible or inconvenient to take men from the regular organization to bring the cars in, so outside help has been obtained in various ways. Some of the drivers secured were far from satisfactory. Some considered the thing as a joy ride, others turned out to be lovers of "nose paint" and some abhored the thoughts of getting up in the morning. These undesirables have been eliminated as fast as possible.

The Chandler and Reo dealers have found it advisable to use girls for drivers, although the general opinion seems to prevail that they are not practical for this sort of work. Others may come to it later if they find it impossible to get a satisfactory class of men. The greatest



A Packard carrying passenger chassis. The sign on the cover reads, "Neither snow, nor rain nor darkness of night can stop these Packard trucks"

Summary of the Drive-Away Situation as Viewed by New York Dealers

	Chandler	Reo	Studebaker	Buick	Overland	Packard	Dodge	Chevrolet
How many cars driven from factory?	80-100%	1 train of trucks to Atlanta	75%	90%	125-150 in last month	2 truck trains	Large number	All they can get through
What is the freight situation?	Worse	.....	No better	Don't think it will clear up	Clearing a little	About the same	Clearing a little	Clearing a little
How are the roads?	Good; only 28 miles bad	Good	75% good	Good	Good and bad	Mostly good	Good	Fair except where torn up by government trucks
Routes used	Cleveland, Erie, Westfield, Hornell, Elmira, Binghamton, New York	Lansing, Jackson, Cincinnati, Louisville, Bowling Green, Nashville, Huntsville, Rome, Atlanta	Use both Pittsburgh and Buffalo routes: Canadian route good in summer and shorter	Flint, Sarnia, Ingersoll, Hamilton, Niagara Falls, Batavia, Mount Morris, Bath, Elmira, Binghamton, Liberty, New York	Toledo, Cleveland, Erie, Buffalo, Albany, New York	Detroit, Toledo, Lincoln Highway, Gettysburg, Baltimore, Philadelphia, Trenton, New York	Route varies	Tarrytown, New York
Cost per car	$80	.....	$100	.....	$100	$150	$80-$90	.....
Drivers	Girls	Girls	Men	Men	Men	Men	Men	Men
Water routes	Will use Lake boats	.....	Will use Lake boats	.....	.....	.....	.....	.....
More than one car per driver?	No	No	No	Yes—Trailing device	No	Yes—Pass. car on truck	Yes, in some cases	No



This fleet of Reo trucks was driven by girls from the factory at Lansing, Mich., to Atlanta, Ga. The roads were found to be in fair condition, except where a wide detour had to be made near Rome

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FLINT TO PORT HURON AND SARNIA

Flint, Lapeer, Imlay City, Capac, Emmitt, Port Huron to Sarnia. At Port Huron take Ferry to Sarnia where you show pass and papers from factory showing driveaway and get clearance papers from Canadian Custom Inspectors. Stop at Sarnia for night.

SARNIA TO HAMILTON

Leaving Sarnia in the morning lunch at London which is sixty miles out. Pass through Ingersoll eat supper at Bransford making Hamilton which is about 25 miles further out the night stop.

HAMILTON TO BATH, NEW YORK.

Leaving Hamilton in the morning go to Suspension Bridge where the Custom Officials will look over your passports before crossing into the States. At the American side of the Falls inquire for the location of the brick road leading into Buffalo about 18 miles out on this road inquire for directions to Batavia, follow this route avoid going through Buffalo. At Batavia inquire for directions to Avon leaving Avon to Mt. Morris, Dansville, Hornell and to Bath the night stop.

BATH TO LIBERTY

Leaving Bath go to Elmira eat lunch in Binghamton, Binghamton to Windsor, to Deposit, Hancock, Livingston Manor, Liberty for the night stop.

LIBERTY TO NEW YORK.

Liberty to Monticello, to Middletown, to Goshen, to Tuxedo, Suffern, Fort Lee Ferry to New York City.

Reproduction of the typewritten route sheet furnished to drivers and captains driving in Buick cars

precautions have to be taken to insure that the cars will be carefully driven so that they will arrive as nearly like new cars as possible.

In general, the cars are driven in groups or fleets of five or six, the fleet being in command of a captain who is more of an expert than the drivers, and who can fix up any minor mechanical difficulties that the cars may get into. He must be able to take command of the men and get the most out of them, and at the same time not be too autocratic.

As these fleets are going through all the time, it is necessary that a favorable impression be created for the men in the minds of local officials, hotelmen and others with whom they come in contact. The Buick company has road inspectors who seek to smooth out any roughness that may occur.

These road inspectors also keep tabs on the crews and appear anywhere along the road at odd times. The men know of the existence of these inspectors, and this tends to keep them on their best behavior. The Buick has had as many as 100 men on the payroll at once as drivers, and the drive-away business is brought up to as nearly perfect a system as possible.

Urge Customers to Drive Cars

Many of the dealers are urging their customers and the customers of their subdealers to go out themselves and drive the cars in. This idea appeals to many, especially in the cases of new owners. It gives them a chance to visit the factory where the car is made, and to drive the car the first few hundred miles under the supervision of an expert.

Ernest V. Derks, service manager of the New York branch of the Buick Motor Co., has prepared an agreement which all the drivers are required to sign before taking up their work. He says that with this agreement, the fleet captains and the road inspectors, they have practically no trouble with the men. The agreement follows:

I.....do hereby agree to serve the New York Branch of the Buick Motor Co. in the capacity of automobile driver from Flint, Mich., or any other given point to destination as specified by said company's representative. I further agree:

First: To obey all speed laws or traffic regulations, and promise that at no time will I exceed a speed of 30 m.p.h., and will only travel at this rate after the car is thoroughly limbered up and on good roads, otherwise my speed will be limited to 25 m.p.h. These limits are only to be reached when within the speed law and condition of the road warrants it.

Second: I promise to keep in my respective position when driving and to keep 100 ft. distant from the car in front of me. Should my car be disabled, I will signal the horn three distinct times, in which case all drivers should stop. I promise that at no time will I separate from the rest of the crew that I was sent with unless authorized by the captain to do so.

Third: I promise to look presentable and act gentlemanly, and at no time use profane language when in hotels, restaurants, trains, or at any time coming into contact with the public. I will also make as little noise as possible when coming through towns, and will not raise any disturbance whatever.

Fourth: I promise to take care of the car I am driving to the best of my ability. I agree to lubricate the car thoroughly or any part thereof whenever conditions warrant it. Cut-out never to be opened. I will also see that the tires are inflated to the proper pressure at all times, and will not run my car unless it is in proper condition. I promise not to drive my car unless both foot and emergency brakes are in proper condition. I will not lower the side curtains unless authorized by the captain to do so, and in addition to taking the best care of the car, I will also bring in complete all tools, accessories, or any other material which is given to me for that purpose. I will not make any marks or impressions upon the top, body or other part of the car. I promise to be of whatever assistance I can be to the rest of the men of the crew in helping bring the cars in as near brand new automobiles as possible.

Fifth: Should I be arrested for violating any of the State, city or county laws, I agree to pay the fine wherever same is imposed, and where there is an alternative of serving the time, I will not do so. If I have no means of settlement, I will let the captain settle, and the amount incurred will be deducted from my salary.

Sixth: I promise to obey all orders issued by the captain, and should my services not prove satisfactory, the said company's representative has permission to discharge me on the road and pay me my salary up to that time. Said company is not obliged to pay me any further compensation, or to pay any of my traveling expenses after I have been discharged.

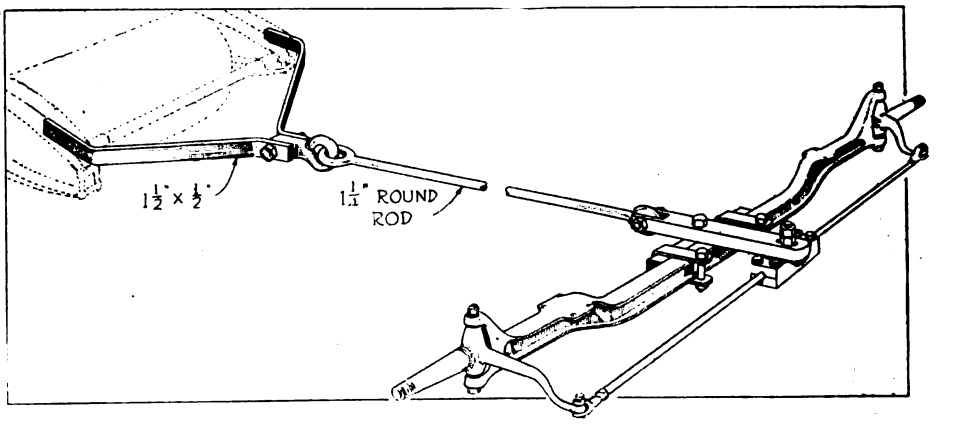
In consideration of all the above, I am to receive daily or weekly compensation, and hereto attach my signature in acceptance thereof.

(Signed).....

One Car to Tow Another

Another interesting feature of the drive-away is the coming use of devices whereby two cars may be brought in by one driver. A towing bar, attached to the rear of the driven car, pulls the towed car by a clamp in the front axle. The bar extends behind the axle, and a stud on a clamp on the tie rod goes in a hole in the bar. In this way, when the bar turns, it moves the tie rod, and the towed car follows its leader.

At present the Packard branch is driving in no passenger cars, but each truck driven in carries either a smaller truck or a passenger car chassis. There seems to be no logical reason why this idea cannot be extended.



Towing device used by the New York Buick Branch, so made that the towed car is steered by the towing bar. Device weighs about 50 lb. and could be made for about $15

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Two Men

Where Last Year You Were Only One

By Ray W. Sherman



"WELL," beamed Reilly, hanging up his coat and hat and hustling towards his desk, "I got it!"

"What?" said Tommy Trumbull, looking up from the letter he was reading.

"Why, that Sayanna truck I was talking about the other day," exclaimed Reilly. "Didn't I tell you we were going to sell trucks?"

"Yes——," Tommy hesitated. "You did say so—but I didn't think you were going to jump right into it offhand."

Reilly laughed. "Oh, you didn't? Well, we're here! See!" And Reilly held in front of Tommy's eyes a distributer's contract for Callawassa, the county and then some.

Will Make Things Hum

"We're going to sell 'em—a lot of 'em. We're only a half a hundred miles from Sayanna, where the factory is located; we can get a lot of trucks if we keep after them. There is a big chance to sell them and we're going to make things hum. The old Sennett factory at Sayanna can't give us as many cars as usual this year. We need more volume. Furthermore, even if we could get all the cars we want, it is up to us as good business men to corral this volume that is lying at our doors waiting for us to pick it up."

"Who's going to sell the trucks?" inquired Tommy.

"Who? You—and the rest of the boys. Why?"

"Do you—can our car salesmen sell trucks?" Tommy cautiously put out a feeler.

"Why not?"

"Well—they say—some folks think that a passenger car salesman can't sell trucks."

"I know it!" retorted Reilly. "Some passenger car salesmen think so—and that's why they can't sell 'em. Generalissimo Foch says no battle is lost until you think it's lost. It's the same way in selling trucks. Salesmen and sales managers think salesmen can't sell trucks because they tried it and the salesmen didn't sell trucks. And the reason the salesmen didn't sell them is because they were accustomed to thinking of only one thing at a time. They didn't make sufficient effort to acquire minds trained to grasp and handle more than one subject."

"Maybe," was Tommy's admission.

"I know," Reilly agreed, "we have talked this thing over in the trade for years, and most of us have come to the conclusion that a passenger car man can't sell trucks. Much of the conclusion is based upon the data of a few dealers who tried it and decided it didn't work well. Therefore, the conclusion is that no passenger car salesman can sell trucks.

A Matter of Mental Attitude

"But I don't believe it, Tommy. It is largely a mental condition. Those who believe it can't be done declare that it requires the salesman to think along two entirely different lines—and that he isn't capable of doing it. I agree with the first part, but I won't admit that the motor car salesmen—at least those you and I have picked and trained—are so low in mentality and intelligence that they can't think of both cars and trucks.

"If left to their own devices they might drift along in the old way, thinking of cars only and believing they couldn't think of both lines, but I propose to give them a lot of help and try to teach them to think along both lines. If some of them can do it and others can't we shall have to investigate and learn if those who can't are hot enough on the one line to justify our keeping them.

"We shall start in by putting one man on trucks entirely, and as the business grows it probably will so be that others will be exclusive truck salesmen, but all the way through the business I propose to see to it that every man in the whole organization has his eyes and ears and mouth open on our whole line of products and sells them. Isn't it a foolish idea for a car salesman to go around through the city every day, stumbling over truck prospects and saying nothing about it? And vice versa?

Must Adapt Themselves to Conditions

"Where would the business get off if all I could think of was selling? Who would look after the figures end? Who would do the buying? Who would watch the service station to prevent losses? If I can think along four or five different lines why can't a salesman—many of whom are just as smart as I am—think along two lines? Everywhere in business we see men thinking of more than one thing—and making a success of it. Why can't our salesmen do it?"

"Maybe they can," admitted Tommy. "Let's try it anyway."

"Attaboy!" enthused Reilly. "I'll tell you, Tommy, we've got to do some of these things—or try them at least. Conditions are changing. They have changed more in the last year than they would have changed in several years had times remained normal. We must change with them or we're back numbers—down-and-outers.

"We have all preached the gospel of greater effort and greater efficiency. We

(*Continued on page* 52)

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Dealers Getting Cars With New Continental Engine

Model 9N Is Successor to 7N and Has Longer Pistons, Hotspot Intake Manifold and Heavier Crankshaft

THE Continental Motors Corp. has brought out the 9N engine to succeed the 7N, and cars equipped with the new model engine are now being supplied regularly.

The 9N is similar to the 7N but incorporates certain refinements such as longer pistons, a hotspot intake manifold and a heavier crankshaft. The new manifold is so arranged that a portion of the intake is integral with the exhaust, thus giving the hotspot feature which has been found to be beneficial in shortening the warming up period with present-day fuel. It also aids in the evaporation of the heavier particles of the fuel, since it carries the intake temperature to a sufficient degree to boil off the heavier constituents.

As in the 7N the inlet passes between the cylinders, which tends to keep the mixture in the gaseous state, and more heat is imparted to the mixture in the inlet passage by its contact with the thin wall of the exhaust manifold. The crankshaft is heavier, particularly as regards the crankpin. The pins are now 2¼ in., whereas they were 2 in. on the former model. To compensate for this the cheeks of the cranks are also heavier.

The Continental 9N six has a displacement of 303.06 cu. in., and was designed to meet the demands for an engine of medium power output and particularly adapted to the needs of the assembled car makers, being standard in every respect as regards accessories and clutch and transmission attachments.

The six cylinders are cast in block from reverberatory air furnace iron, which is rough bored and aged before the finishing machine work is carried out on it. Cylinder manufacture includes a finish-bore and grinding to standard size. The water jacket head is cast separately and is retained by screws, which gives a simpler casting and permits of greater uniformity in the cylinder core and tends to a very small percentage of loss in production.

The crank case and oil pan are separate, the crank case being an aluminum casting and the oil pan pressed steel. The bearings are all carried in the crank case and can be reached by dropping the oil pan.

The valves are actuated in accordance with standard L-head practice. They are all of the same size and enclosed. The valves have nickel steel heads electrically welded to carbon steel stems. The heads and stems are ground to size and the clearance around the valves is ample to secure the desired efficiency. The ends of the valve stems are hardened to reduce wear against tappet action and the valves are fitted with oil tempered springs.

The valve stem locking device used on this engine is similar to that on the other Continentals, being a patent design and readily detached. The removable metal plates which cover the valves are also quickly detached and act as a dust-proof housing, as well as a means of keeping the engine quiet.

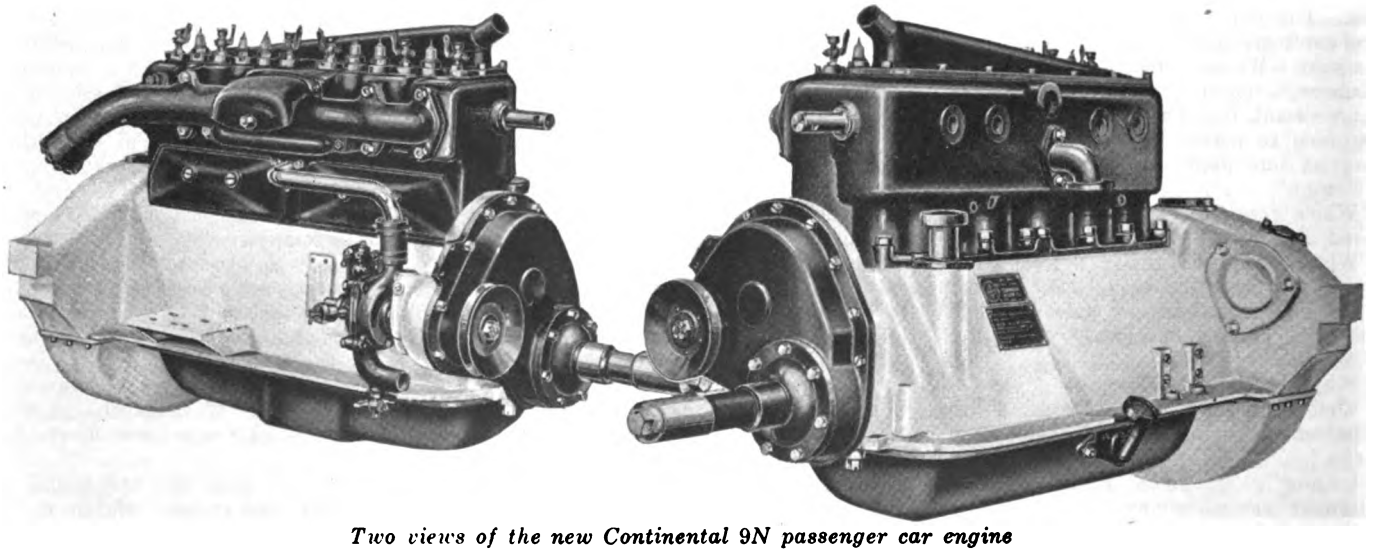
The pistons are made from the same grade of iron as used in the cylinders. They are ground to size and fitted with three diagonally split concentric expansion rings. These rings are ground on both face and sides. The rings are fitted in the piston grooves and are run into the cylinder by a belting-in process before the engine is run under its own power.

Oil grooves are turned on the outside of the piston for collecting and distributing the oil splash. As is customary, the pistons are weighed and balanced so that the piston sets entering each engine correspond in weight.

The piston-pin is made of No. 3 annealed steel tubing, hardened and ground to size. It is held stationary in the piston bosses by means of a locking device, and has its bearing in a bronze bushing which is pressed into the connecting rod. Lubrication of this bearing is obtained through an opening in the upper end of the connecting rod in which oil from the splash is trapped.

The connecting rods are of I-beam construction and are made of 0.35 carbon steel, drop-forged and heat-treated. Connecting rod caps are held in place by nickel steel bolts, secured by a locking device.

The camshaft is drop-forged from low carbon steel, the cams being integral with the shaft. This shaft is carried in white bronze bearings which are lubricated by oil that is forced to them by the oil pump, as will be afterward explained. The camshaft is heat-treated after the rough machining and annealing processes. The shaft is heat-treated all through and is finish-ground to accurate size on a cam-grinding machine. One of the points regarding the main-



Two views of the new Continental 9N passenger car engine

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tenance of this Continental engine is the fact that the camshaft may be readily withdrawn by removing the gear case cover. The camshaft acts directly on mushroom type followers, with heads and stems that are ground to exact size.

One of the differences between this engine and the 7N is in the more careful balancing of the crankshaft, due to new methods by means of which the crankshaft revolves at high speed by an air blast. This air blast is directed against paddles attached to the shaft on a collar, thereby relieving the shaft of any complications due to a driving mechanism which would be necessary to rotate the shaft in balancing it. The material for the shaft has a tensile strength of 80,000 lb. per square inch. It is a drop-forged unit, heat treated, with flanges on both ends to take end thrust which may be imparted from the clutch or from any other outside mechanism.

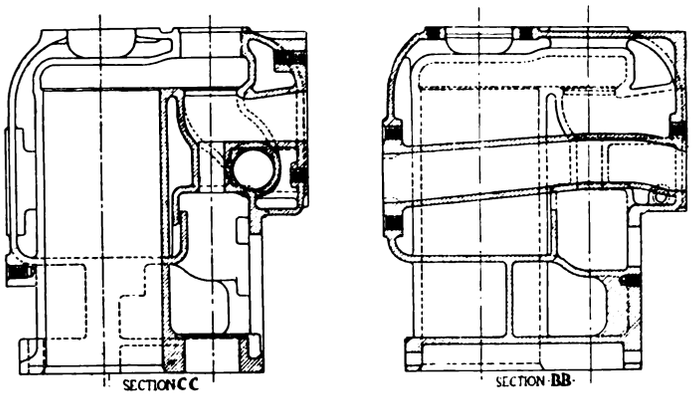
The timing gears are helically cut on automatic hobbing machines. In order to secure the desired quietness, the center distances are held within close limits. Three gears of the timing gear chain are a crankshaft gear, camshaft and a pump shaft gear. These timing gears are housed in the usual case on the front of the motor.

The bearing work is such that the maintenance is a thoroughly simple proposition. Crank, cam and connecting rod bearings are of nickel babbitt. Connecting rod and crankshaft bearings are backed with bronze, which, being a good conductor, aids materially in keeping the bearings cool. These are held in place by brass retaining screws. All of the bearings, after being fitted, are expanded on special arbors, reamed and finished with a slow-running spiral-cut power burnisher, which is claimed to give 98 per cent of actual bearing surface. The connecting rod bearing adjustment is secured in the usual manner by removing one or more of a number of punched steel shims.

The flywheel is attached to the crankshaft on the drop forged flange and is held in place by six steel bolts. It is made of iron, carefully turned and balanced.

Water circulation is by means of a centrifugal pump fitted on the engine and provided with two large bearings fitted with stuffing boxes and equipped with a drain cock to draw off the water in freezing weather.

Lubrication is by a force feed and splash system in which circulation is maintained by a horizontal plunger pump driven by an eccentric from the camshaft. This forces oil through copper tubes direct to the timing gears and all main crank and camshaft bearings. The oil then drains back into the oil pan, thus maintaining a proper level for the splash lubrication of pistons, piston pins and connecting rods.



Cross-sectional views of cylinder block

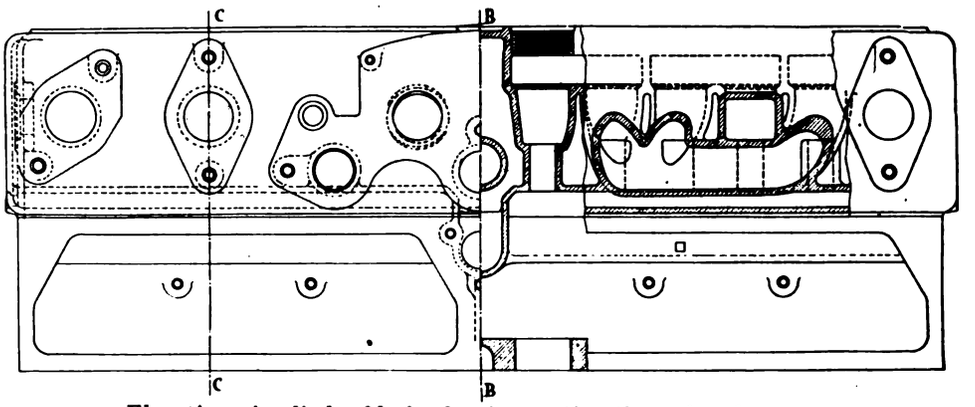
In fitting the clutch and gear set either a cone, multiple disc or plate clutch may be used. Clutch and transmission units specially designed for installation on this engine are manufactured by practically all transmission manufacturers.

The Continental company furnishes with every engine, unless otherwise specified, water fittings, complete, adjustable fan bracket, fan pulley for V belt and port plug wrench. Provision is also made for the application of a power tire pump.

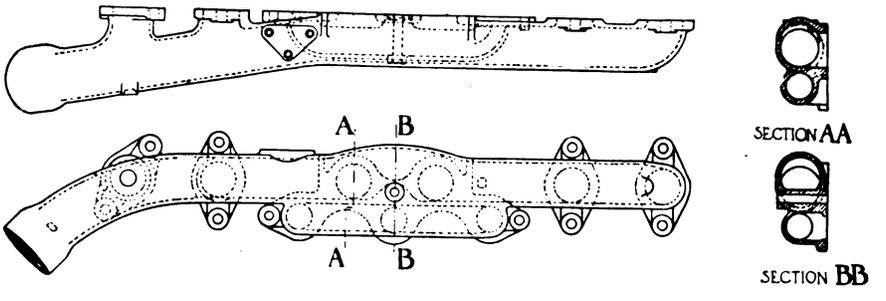
Specifications of the Continental 9N Engine

Type.....Six cylinder vertical—L-head
Size.....3½ in. (88.9 mm.) bore by 5¼ in. (133.4 mm.) stroke
Displacement.....303.06 cu. in. (4967.15 cu. cm.)
Horse-power.....S. A. E. rating 29.4—B. H. P. at 1000 R.P.M. 31, at 2000 R.P.M. 55
Weight.....600 lb. with standard equipment
Cooling.....Centrifugal pump
Lubrication.....Combination pressure feed and splash
Carbureter...Side outlet type, 1¼ in. (31.75 mm.) S. A. E. standard vertical outlet type can be used
Ignition.....Magneto or battery
Lighting Generator.....Any standard make
Electric starter.....Any standard make
Clutch.....Multiple disc or 10 in. plate
Transmission.....Any standard make, having semi-No. 3 S. A. E. bolting flange
Type.....For unit power plant construction only
Suspension.....Can be mounted either 3 or 4 points

Model 9N Dimensions Follow:	Inches	Millimeters
Camshaft diameter	1¼	32
Camshaft bearing, front	2-19/64 x 1-11/16	58 x 43
Camshaft bearing, center	2¼ x 1-1/8	57 x 29
Camshaft bearing, rear	2-13/64 x 1¾	56 x 44
Connecting rod, length	10¼	260
Connecting rod bearing	2-3/8 x 1-13/16	60 x 46
Crankshaft bearing, front	2-25/64 x 3¾	60 x 70
Crankshaft bearing, center	2-11/32 x 2¼	60 x 57
Crankshaft bearing, rear	2-19/64 x 3-5/32	58 x 80
Piston length	4½	114
Piston pin bearing	1-5/32 x 1⅛	29 x 38
Piston rings, 3 in number, width	3/16	5
Valve diameter	1-11/16	43
Valve stem diameter	3/8	10
Rear supporting arm, drop	2½	64
Rear supporting arm width between machined surfaces	23-1/8	587



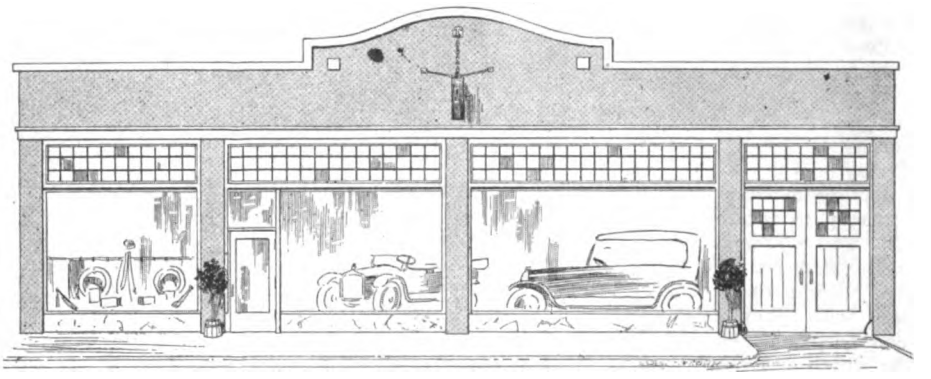
Elevation of cylinder block, showing section through valve passages



Hotspot manifold design

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How to Lay Out a Building—4



THIS is the fourth of a series of articles which take up in detail the layout and arrangement of buildings for the dealer, garage and repair shop.

By Harold F. Blanchard

Plan No. 3

Specifications: Plot, 60 x 150 ft.; four-car showroom; larger store; ladies' rest room; private office; garage for 31 cars; shop for five cars; shop lavatory; tool closet; four machine tools; two specialty rooms.

THIS is a splendid design, Fig. 13, just as it stands, for a man with a well rounded out business of fairly large size. The showroom takes four cars comfortably; the garage houses thirty-one cars in a minimum space; the shop holds five cars with provision for all the usual machine tools and two specialty rooms, making it possible to concentrate efficiently on any two of the following: Welding, electrical repairs, vulcanizing, carbureter repairs, etc.

Plan Is Flexible

It goes without saying that this building may readily be made any number of stories, with the elevator placed on the same side as the washrack. No alteration in the shop is necessary if it is placed on another floor.

From preceding examples it should be clear that this plan may be adapted to any plot more than 40 ft. wide, although, as previously stated, it is not advisable to use it on a plot less than 50 ft. In order to keep the room areas the same it would be necessary to make the various departments somewhat deeper to compensate for a narrower plot. Likewise if the plan is used on a wider plot the rooms might be made somewhat shallower. However, if the plan is employed on a plot less than 55 or 60 ft. wide only two rows of cars can be stored.

Accessory Store Important

The accessory store is considerably larger than any shown heretofore. Also it is the first store entirely separate from the showroom.

Only one small door is used for an entrance to the showroom and store. Cars are introduced through a sliding door at the rear corner. The oblique position of the door is necessary in order to allow sufficient clearance for a car. This modification may be employed on any of the plans shown so far and most of those which follow. It is an economical way of giving an inside car entrance to the showroom where this is deemed necessary.

The rest room is a convenience for ladies which will be appreciated mainly by tourists. In a large city it would undoubtedly be wiser to use this space for some other purpose; for example, it might be employed as a conference and prospect closing room.

Fig. 14 shows the same plan slightly changed for a corner plot. The driveway space is used up by allowing a somewhat larger store, a considerably bigger stock room and a showroom that has a much greater area.

Double doors have been substituted in front so as to allow the entrance of a car, since the elimination of the driveway precludes the use of the obliquely placed door shown in Fig. 13.

Cars are arranged crosswise, as might be expected in a corner garage.

The repairshop is identical with the one in Fig. 13.

Locating the Elevator

If the building is more than one story the elevator location and layout of the second floor are usually best arranged as shown in Fig. 15.

For the sake of showing a variation in washrack layout the one in this plan is built double. Two cars may be washed at one time and there is space for storing four cars.

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It should be evident by now that any of the three units—showroom, garage or shop—may be exchanged with any of those shown in previous plans.

Wants Three Entrances

Editor Motor World: Please give plans and specifications on a garage with workshop, office, salesroom and storage, same to have outside dimension of 60 by 120 or 130 ft. with three entrances, south, front. North entrance to be alley and west by side street to be constructed of tile brick.—H. H. Haskin, Frankfort, Kan.

Answer—At the present time we are unable to furnish you with complete specifications for your building but we are enclosing a plan as requested.

The showroom and store have a single door entrance at the front. Cars are brought into the showroom through the double doors at the side.

The cars indicated in dotted lines show how the front and rear garage entrance space may be used for the storage of cars late at night.

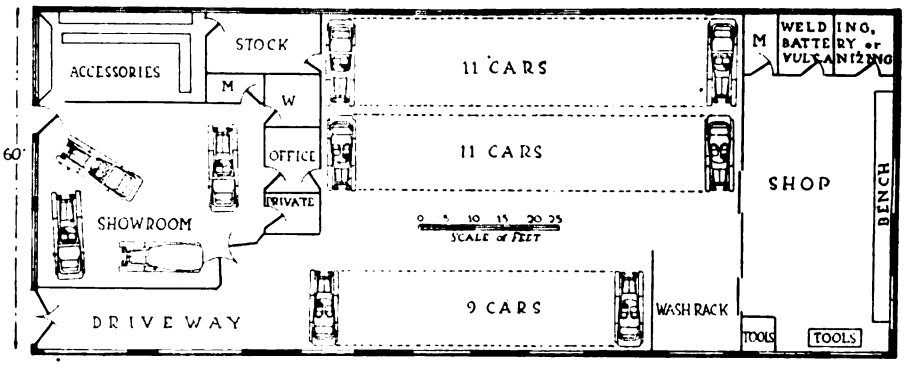


Fig. 13—This lay-out is for a building 60 x 150 with showroom for four cars, office, ladies' rest room, garage for 31 cars, repairshop, etc.

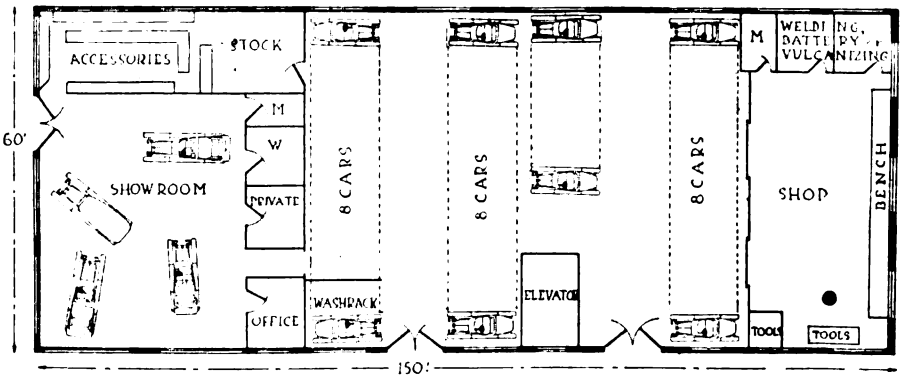


Fig. 14—Here is an alternative arrangement for the same size building

3000 Motor World Systems

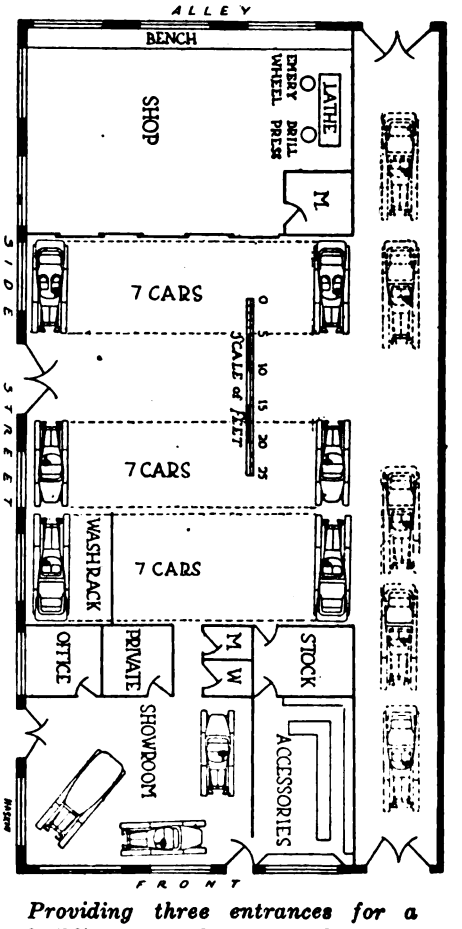
NEW YORK, May 7—The manufacturers of the Motor World Simplified System of Accounting, which was put on the market two years ago, have just completed the manufacture of their 3000th system. Practically this whole number is now in operation by dealers and garagemen in the motor car trade.

The system, which is now handled by the U. P. C. Book Co., one of the companies that is affiliated with the publishers of Motor World, does annually a large business in supplying forms to the users of these systems and in addition operates a service department for giving advice and instruction to those who have purchased the outfit.

In some cases users of the system have sent their entire records for a month to this service organization, with a request that the system expert straighten out the figures and show the dealer just why he is not arriving at the results at which he aims. Generally it has been due to some small error in handling the work, and it has not been difficult to straighten the user out and start him on the road to better business and greater profits.

American Brass Spelter Solder

A booklet issued by the Waterbury Brass Branch of the American Brass Co., Waterbury, Conn., gives interesting and instructive details regarding the different meshes, alloys and melting points of brass spelter solder. The practice in mixing spelter solder for use in brass and steel tubes is of interest to the dealer who does his own brazing. To prepare the borax, put a sufficient quantity in the pan to cover the bottom, heat over a slow fire for about an hour to dry out the borax, which should crumble in the fingers to fine powder. To prepare the solder, mix it with the burnt borax in the proportion of 10 lb. solder to 1 lb. borax and add enough water while pounding to bring to the consistency of putty. This mixture will serve as the supply.



Providing three entrances for a building on a plot of standard size

To use, place a small quantity in a brazier's dish, thinning with water to about the consistency of cement for grouting. Apply this mixture to the article.

Brass spelter solder is made in a number of different grades of fineness of mesh, suitable for different classes of work, and also in different alloys, the melting points varying from 1420 to 1600 deg. Fahr. Success in brazing depends largely on the selection of the proper grade of spelter solder.

Minneapolis Association Takes $10,000

MINNEAPOLIS, May 5—The Minneapolis Automobile Trade Association bought $10,000 of Third Liberty Bonds. The members of the trade did not work as a body and only a few served on teams to solicit purchases. L. M. Browne of the Anderson Electric Car Co. was automobile member of the committee which solicited purchases on Motor Row.

Wilmot Succeeds Simning

MINNEAPOLIS, May 4—Walter Wilmot has succeeded R. B. Simning as assistant secretary of the Minneapolis Automobile Trade Association. Wilmot will have the same offices in the Andrus building. He has been show manager many years for the association. Simning has removed to 533 Metropolitan Life building, with the American Securities Corp.

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The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer.

THE LAW

By George F. Kaiser

As It Applies to
Dealers
Repairmen
Garagemen

Some Definitions

From time to time I am asked by dealers as to the legal definition of words and phrases. I am therefore setting out a few of the words which I find have been legally defined.

A word which is naturally of great interest to dealers is the word *"dealer."* This has been quite generally defined in the various state motor vehicle laws to mean "a person, firm, association or corporation having in his, its or their possession vehicles for sale or trade and for use and operation pursuant thereto."

A concise definition of the word *"garage"* as contained in some of the state motor vehicle acts is, "Every place of business where motor vehicles are received for housing, storage or repair for compensation."

The words *"motor vehicle"* are defined to mean, "All vehicles propelled by any other power other than muscular power, except motor bicycles, motorcycles, traction engines, road rollers, fire wagons and engines, police patrol wagons, ambulances and such vehicles as run only upon rails or tracks."

The word *"chauffeur"* is generally defined to mean "Any person operating or driving a motor vehicle, as an employee or for hire."

The definition of the word *"operator"* is "Any person, other than a chauffeur, who operates a motor vehicle."

The term *"omnibus"* usually includes "Any motor vehicle held and used for the transportation of passengers for hire."

In addition to the above words a number of terms like *"as is,"* which was so popular a few years ago, have been defined by the courts of the various states.

"As is" as applied to a motor vehicle has been held to mean the condition a vehicle is in at the time of the sale.

The words *"fully equipped"* were defined in a Canadian case to mean that a car was equipped with such accessories and equipment as it was usual to equip a car with in the motor trade.

The words *"A1 shape"* have likewise been legally defined by a court, and it was decided that the words "A1 shape" meant "First class condition, and that when a car had a knock in the engine, and the brakes were defective, it was not in 'A1 shape.'"

In another case it was decided that the words *"in good running order"* are not the same as "fair condition," as "good running order" means "first class condition," while "fair condition" is not "first class condition."

Even the word *"repairing"* has been defined by the courts, and it has been held to mean "Restoring to a good sound state after decay, injury, dilapidation or partial destruction."

He Can Sue

The New York Supreme Court decided recently that a person who buys an automobile under a conditional bill of sale has a right to sue for damages to the automobile caused by the negligence of another.

The court held that the buyer has this right even though it is provided in the conditional sale agreement that the title is to remain in the seller until the full purchase price is paid because the buyer is under a duty to keep the property safely and to pay the seller for it, and being liable for damages to it he has a right to get back the damages which he may have to pay from the person whose negligence causes the injuries.

License Tangle

Editor Motor World: Can you tell me how to compel by legal proceedings the Secretary of State's office, Buffalo branch, to correct my chauffeur's license?

I have had a license for a number of years, and the type of car has been indicated by the abbreviation "Pl," which I understood to mean Pleasure. This year the card is marked Planetary, and when I took this up with the Buffalo office I was informed that Planetary meant Ford.

Now, as I have never driven a Ford 10 miles in my life, but have always driven a sliding gear car, except driving an old Overland to learn, and my road tests by the examiner being with a sliding gear car, I do not see any reason why I should now be restricted to a Ford, which I have never driven. I have driven a sliding gear car probably about 75,000 miles.

I asked the Buffalo office to correct the card, but it was returned without any correction.—Otis Doty, Canisteo, N. Y.

Answer—You are quite correct when you say that the abbreviation Pl on your chauffeur's license stands for planetary, and that this license will not permit you to operate anything other than a Ford car.

The New York office of the Secretary of State suggests that you write to the Buffalo office and explain to them that you took your tests on an Overland car, and request them to alter your license. It may be that they do not understand that you took your tests on an Overland car.

If this does not clear up the matter please write to us again, and we will see what we can do for you. We shall be glad to do everything we can to assist you in getting the matter straightened out.

Somewhat Mixed

Editor Motor World: I am with a local firm handling a popular car in this territory, but I am not a salesman. A friend of mine owning one of our cars and keeping it in our service station asked me if I could sell his car. I said I thought I could, and with that he said, "Go ahead and sell it." He did not tell me not to. He just said, "Go ahead and sell it." One evening after business hours I gave a prospect a ride in the car, which he bought after the demonstration. I told my friend the next day and he said, "Fine." He received his check and went away happy.

Did I have a right to demonstrate that car on the road or not? Was my firm responsible in any way for damages that might have come to the car whilst in my hands, and have they any claim to a commission?—R. L. M., Hartford, Conn.

Answer—The right of your firm to a commission on this sale depends, of course, on your understanding with the car owner. If you had no understanding regarding a commission but were regularly employed in selling used cars on a commission basis you would probably be able to recover. You undoubtedly had a right to demonstrate the car in order to sell it.

The question of responsibility for an accident would depend, of course, on whether or not you were acting for the owner or for your firm. I think that if you had been entitled to a commission your firm would have been responsible for damages. As you apparently are not entitled to a commission, and it was not a firm matter you were engaged in, I do not think your firm would be held responsible.

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A Department of

BETTER MECHANICS

No. 66

Simple Electrical Testing—2

Use of Voltmeter and Ammeter in Making Simple Tests on Starting Motors and Generators

THIS is the second of a series of three articles on simple electrical testing. The articles have been written with a view to assisting the garageman and repairman to a better understanding of the electrical equipment of the modern car so that he can be of greater service to his customers. Save all the articles for future reference.—EDITOR.

IN a previous article the method of testing electrical circuits by means of a test lamp was described in some detail. It was shown at this time that field coils, armatures, etc., might be tested in a similar manner. However, such tests made by a test lamp are not accurate, being simply qualitative and not quantitative in their nature. For making the accurate tests necessary for intelligent repair of the electrical system, certain standard instruments are necessary. Perhaps the instrument best suited for this purpose is a combination volt-ammeter. This may be used to measure high or low voltages, and by employing a shunt may be used to measure amperage. Such an instrument may be purchased from any reliable electrical supply house, which will furnish the proper instrument upon description of the purpose for which it is to be used.

SIMPLE VOLT-AMMETER READINGS

The three common methods of connecting the volt-ammeter in the circuit for taking either the voltage or amperage readings are shown in Fig. 1. A and B show the methods of taking the voltmeter readings and C the connection when the instrument is used in connection with a shunt as an ammeter.

Always in connecting an electrical instrument into a circuit, it is the rule to so connect that the needle will register on the largest scale—particularly so if the approximate voltage is not known. For example, in Fig. 1 A the connection when taking a reading up to 30 volts is illustrated. If the voltage is found to be less than 3 volts and an accurate reading is desired, the connection can be transferred to a 3-volt terminal on the meter as shown in B, Fig. 1. However, were the connection first made on the 3-volt terminal and the voltage amounted to more than 3 volts, the needle would be deflected beyond the scale and the instrument might be damaged.

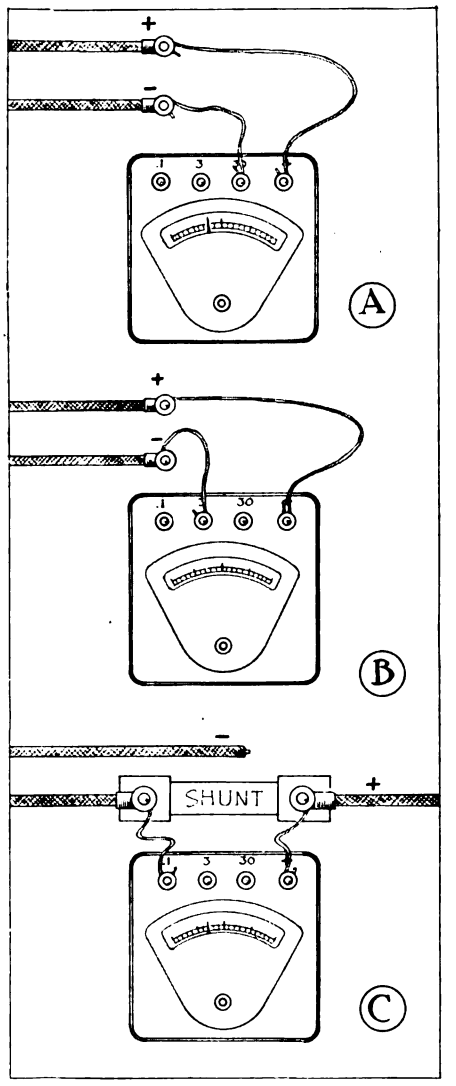


Fig. 1—The three common methods of connecting the volt-ammeter to a circuit are shown above. A shows the connection when taking a reading up to 30 volts; B, up to 3 volts, and C, the method of using a shunt for ampere readings

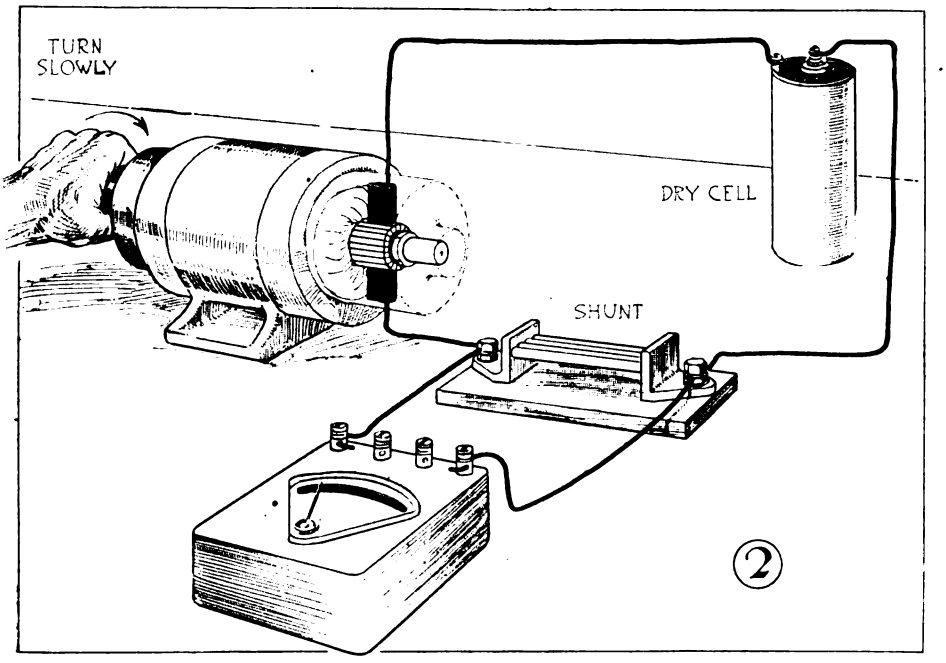
USE OF THE SHUNT

Usually three shunts are provided with the meter permitting it to be used as an ammeter. The largest generally has a capacity of about 300 amp., the second of 30 amp., and the third of 3 amp. These are connected in series with the line and transmit the larger part of the current, the smaller part passing through the instrument. Here, likewise, the largest shunt should be connected first, otherwise the instrument may be injured because of the large amount of voltage applied to it.

The method of connecting the shunt in the circuit is shown in Fig. 1, C. It will be noted that the .1-volt terminal on the meter is used. If the resulting deflection of the needle is found too small when the largest shunt is used, the middle shunt is next employed. If this, too, permits a small deflection, the smallest shunt may be used, but the smallest shunt should not be used unless it is known absolutely that the current flow is less than the capacity of that shunt.

The volt-ammeter described above is the one recommended for general electrical service work. However, many electrical service men state that their choice of instruments would be a 15 scale voltmeter and a 30 scale ammeter reading both to right and left of the zero mark, together with the necessary shunts. The use of these instruments is practically the same as that of the combined instrument, and the following instructions apply equally to both:

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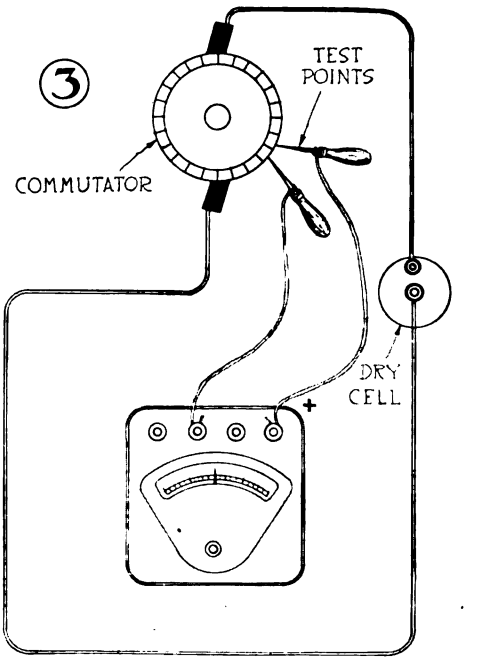


Fig. 2—Left—Coils of the generator armature may be tested by the use of a voltmeter, shunt and dry cell connected in the above manner. Fig. 3—Right—Individual generator coils are tested for short or open circuits after the voltage has been applied to the coils from a dry cell. Voltmeter readings are taken from each pair of commutator bars in the manner shown

To test a generator armature coil it is not necessary to remove the generator from the car, though it is often advisable to do this for the sake of accessibility. The first step is to disconnect the battery from the system so that there is no conflicting current source to affect the readings and perhaps damage the instrument. From the wiring diagram of the particular generator in question, the shunt field terminal should be located and disconnected from the brushes. The voltmeter is then connected into the system as shown in Fig. 1, using a single dry cell as a source of current. The armature is then turned over slowly by hand in the normal direction of rotation and the meter readings noted.

Providing the brushes are in good condition and the commutator is not grooved, no particular change in the meter readings should be registered. However, if the reading suddenly drops or increases a defective armature coil is indicated.

Each of the armature coils may be tested in turn in the manner shown in Fig. 3. The field coils are disconnected from the brushes and by means of a test point readings are taken between each two adjacent commutator bars. A marked increase in the meter reading shows an open circuit in that set of armature coils.

If on holding these test points on two adjacent bars and turning the armature slowly it is noted that at any particular point the reading drops very nearly to zero, a short circuited coil is indicated.

The diagram, Fig. 4, may help to make these tests clearer. Fig. 4 A shows the diagram of a commutator with the carbon brushes which supply the current during the test arranged at top and bottom.

With the current flowing it will be seen that it divides equally from the upper brush passing down each side of the armature winding circuits and out at the lower brush. If the windings are in good condition, the voltage drop between any two commutator bars will be the same and therefore the reading on the meter when the two test points are placed on any adjacent commutator bars will be uniform. If, however, there is an open circuit in one of the armature windings as at X Fig. 4 B there will be an interruption in the path of the current on that side of the commutator, and if

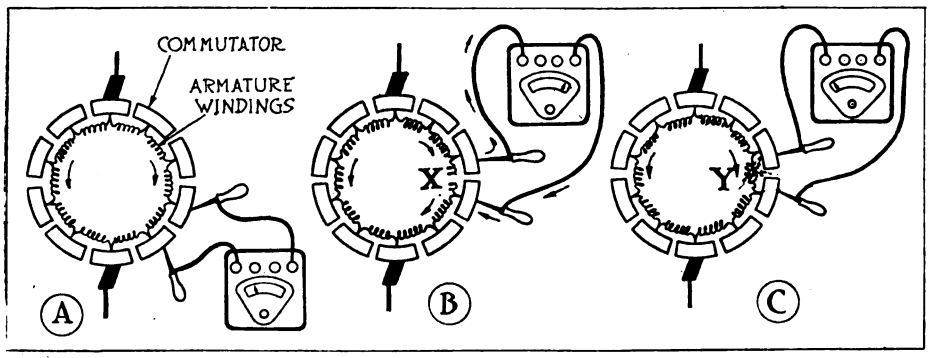


Fig. 4—Diagrams of commutator and armature windings under tests showing the effect on the meter of a short circuited coil B and a broken circuit C in the armature windings

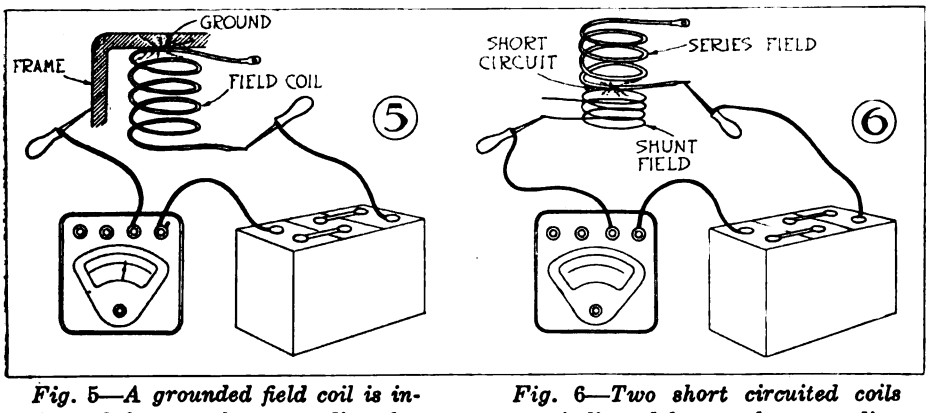


Fig. 5—A grounded field coil is indicated by a voltage reading between one end of the coil and the frame

Fig. 6—Two short circuited coils are indicated by a voltage reading obtained between their free ends

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the test points are placed on the two bars connected to the defective winding, there will be a big deflection of the needle since the meter will carry all the current flowing down that side of the armature winding. Note that if the test points are placed on any other pair of adjacent commutator bars on that side having the defective coil there will be a zero reading.

In the case of a short-circuited armature winding Fig. 4 Y the reading on the voltmeter placed across the two commutator bars connected to that coil will be practically zero, the short-circuited coil having the effect of a shunt across the terminals of the instrument. There will, however, be a slight reading as current is flowing around that half of the armature winding, although the drop in voltage between the two commutator bars connected to the defective coil will naturally be very much less than the normal drop between the ends of a coil that is in good condition.

If the combination instrument first described is being used, connections should be made to the .1-volt terminal, so that the voltage drop may be more accurately measured. The readings on the commutator bars during this test should be approximately the same providing the armature is in good condition.

It is only a special or trained mechanic that can repair a defective armature coil and the most advisable method is to return the armature complete to the manufacturer and install a new armature known to be in good condition.

Testing Field Coils

Field coils may be tested by means of a voltmeter and a 6-volt storage battery in much the manner that tests are made with a test lamp. The common method for testing a field coil for an open circuit is shown in Fig. 5. The two ends of the coil are located from the wiring diagram of the particular equipment at hand and these ends disconnected from contact with any part of the frame. The storage battery is then connected in series with the voltmeter and the test points, and one test point is placed at each end of the field coil being tested.

If the field coil is in good condition the voltmeter reading will be approximately the same as that when the two ends of the test point are placed together. If no voltage reading whatsoever is registered, it is because of an open circuit caused by a break in the field coil. This necessitates a replacement or repair of the coil.

It is possible that some part of the field coil is grounded on the frame of the generator. This condition can readily be determined by placing one test point on the frame of the generator and the other at one end of the field coil, Fig. 5. If both ends of the field coil are free from contact from the frame or from any binding posts, a reading on the instrument indicates that the field coil is grounded. This condition necessitates replacement of the coil or else a repair of the insulation.

One of the possibilities present is that of a short circuit between the shunt field and the series field coils, providing both are present. The method of testing is indicated in Fig. 6. Both ends of both coils are disconnected from their terminals and from contact with any part of the frame or each other. One test point is then placed on a free end of the shunt field coil and the other test point on a free end of the series field coil. Providing the two coils are not short circuited there will be no reading on the instrument and if such a reading is present the coils are short circuited. Replacement or repair of the defective insulation is necessary and this should be done by the factory or by some mechanic skilled in the particular equipment at hand.

From the above it will be noted that the following general rules for electrical testing may be derived:

1—Start with the assumption that the highest possible voltage or amperage is to pass through the instrument and make the connections accordingly. Otherwise the voltage or amperage applied may be in excess of that for which the instrument was designed, resulting in destruction or injury.

2—Disconnect the storage battery of the car on which the equipment is being tested so that it will not interfere with the test.

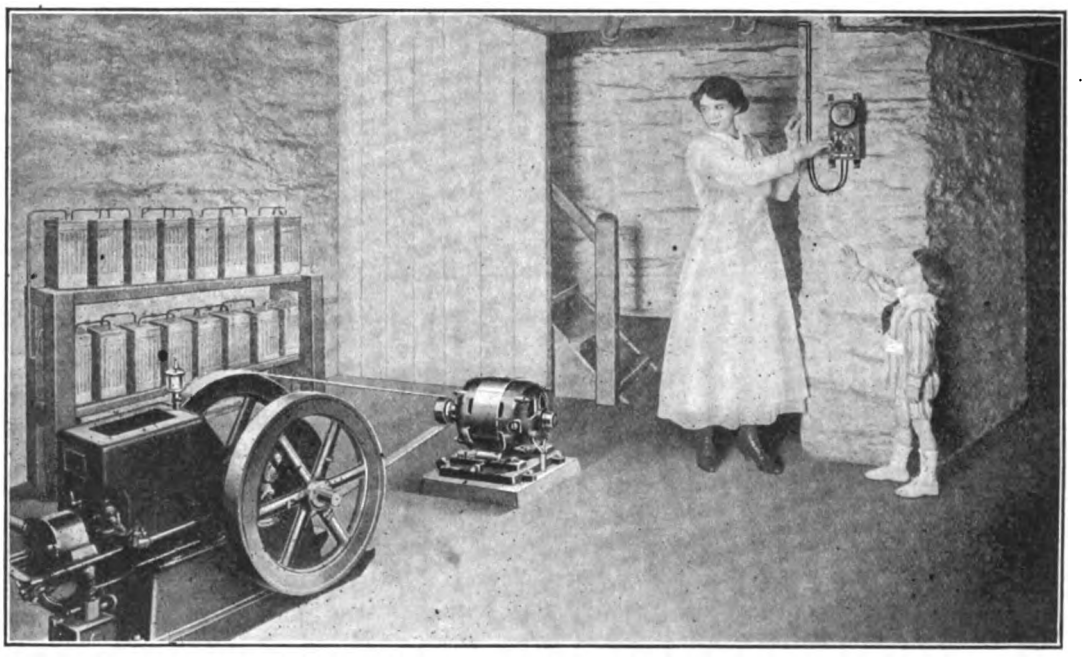
3—Test only one part of the apparatus at a time and remove both ends of the circuit being tested from contact with the frame or with any other circuit at its point connection with the terminals. Otherwise the test can not be isolated to the particular circuit in question.

Western Electric Power and Light Outfit

A NEW type of power and light outfit is being marketed by the Western Electric Co., 195 Broadway, New York. The outfit is simple, compact and easy to operate, being of the belted type with an automatic regulator. It consists of three parts—generator, storage batteries and a panel on which the regulator is mounted. There are two sizes, differing only in the capacity of the storage batteries, 7-R-90 and the 7-R-180, having batteries of 90 and 180 ampere hour capacity respectively. The generators in both cases are 700-watt machines.

The switch panel, which is the main point of interest in the outfit, is 5 x 10 in., with the automatic regulator at the top. Below is a single-pole, double-throw starting and running switch which throws in the generator. This switch is thrown into the run position when current is taken either from the batteries or generator. There are also two battery protecting fuses on the panel, one to protect from excess line current and the other to protect from excess generator current.

When the engine has been started by throwing the switch first to the left and then to the right after getting up speed, the automatic regulator takes full command of charging the batteries. There is neither ammeter nor voltmeter to read. As soon as the batteries are charged, a magnetic device inside the regulator automatically tapers off the current. The selling price is $325 for the 7-R-90 and $385 for the 7-R-180, both prices being without engine.



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Repairshop Shortcuts

From Motor World Mechanics

No. 1655—TO WEAR IN FORD BEARINGS

Ford main bearings, connecting-rod bearings or oversize pistons are worn in by bolting the cylinder block to the drill-press table, with cylinder head removed and four ½-in. pieces under the corners between head and table to give clearance to pistons. A flywheel of the bolted-on type is drilled to fit the flange of the Ford crankshaft and bolted on. The table is turned so that the flywheel lines up with the drive pulley of the drill press and is then belted up. An elevating screw is used to tighten the belt.—C. L. Bloxham, Etna Garage, Etna Green, Ind.

No. 1656—PISTON-RING TOOL

A tool for removing and replacing piston rings is made by grinding down an old table knife, preferably one with a metal handle, till it is about ⅜ in. wide and has a rounded section. This is slipped in back of the ring at the ends, and as the ring comes out it is guided over the piston flats with the other hand. In replacing the ring the center is placed in the groove where it belongs, and the tool slipped under the ends will guide them.—Eugene E. Geoffrey, Silent Knight Motor Repairshop, New York.

No. 1657—REMOVING OLD TIRES

A quick way to remove old, worn-out solid tires from truck wheels is to cut the tires and rims off with a power hack-saw, having a face plate on the front to which the wheel is clamped with a stud and hand nut. A wooden platform with a ramp is placed in front of the face plate and the wheel is rolled up the ramp. Different height platforms allow different diameter wheels to be clamped on to bring their tops to the level of the saw.—George E. Wilhelm, B. F. Goodrich Rubber Co., New York City.

No. 1658—REMOVING FORD TRANSMISSION DRIVE PLATE

In removing the Ford transmission drive plate the first cap screw removed is placed under the clutchshift to remove the spring tension from the clutch fingers. The clutchshift is pried up and the screw left in this place until ready to reassemble the drive plate.—Robert B. Murphy, Ford Motor Co., Detroit.

No. 1659—SPARK-PLUG TESTER

A spark-plug tester to ground two plugs at once is made by bending the blade of a screwdriver 8 or 10 in. long, filing a flat and drilling two holes for bolts or machine screws to hold a flat piece of metal bent as shown. By resting this instrument on two adjacent plugs of a four-cylinder engine, a third plug can be grounded with an ordinary screwdriver, allowing the engine to run on one plug. If this plug is not at fault the tools can be shifted.—Alfred Statlander, Colt-Stratton Co., New York City.

No. 1660—CONCRETE DOOR PROTECTOR

Where garage doors are hinged and open inward a rounded lump of concrete placed opposite the end of the door in its open position prevents cars from backing into the door. The lump is made of such size and shape that if it is hit squarely it will stop the car, and if hit near the side it will shift the car over to the driveway.—United Motor Service, New York City.

No. 1661—CRANKSHAFT HANDLE FOR FORDS

A handle for turning a Ford crankshaft when the bearings are being blued is made from an old rear radius rod cut about 2 ft. long, straightened out and with two flywheel bolts held in the holes by nuts.—William D. Crawford, Duncan Garage, Clovis, Cal.

No. 1662—REPLACING A CLUTCH LINING

To force a one-piece clutch lining on a cone clutch insert a rat-tail file in a bit brace. Force the lining on as far as it will go with the file, which should be a coarse one, and by turning the bit brace the file will roll the lining into place.—S. N. S., Rockland, Me.

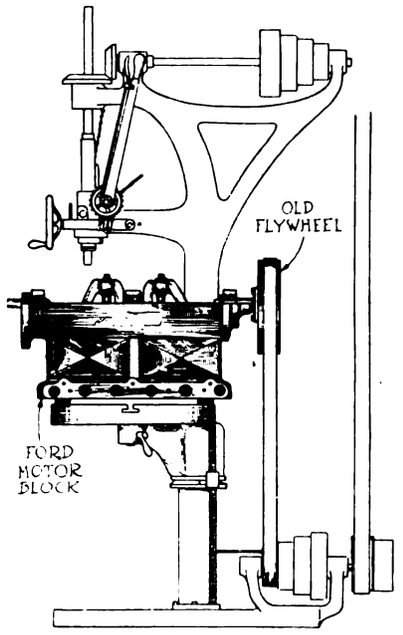
No. 1663—DRAWERS FOR WORKMEN'S TOOLS

Drawers for tools that are of such size and shape that they are convenient to carry around from job to job, and when not in use can be pushed into their slides under the bench and locked with hasp, staples and padlock over night or whenever desired.—Maxwell Motor Co., New York City.

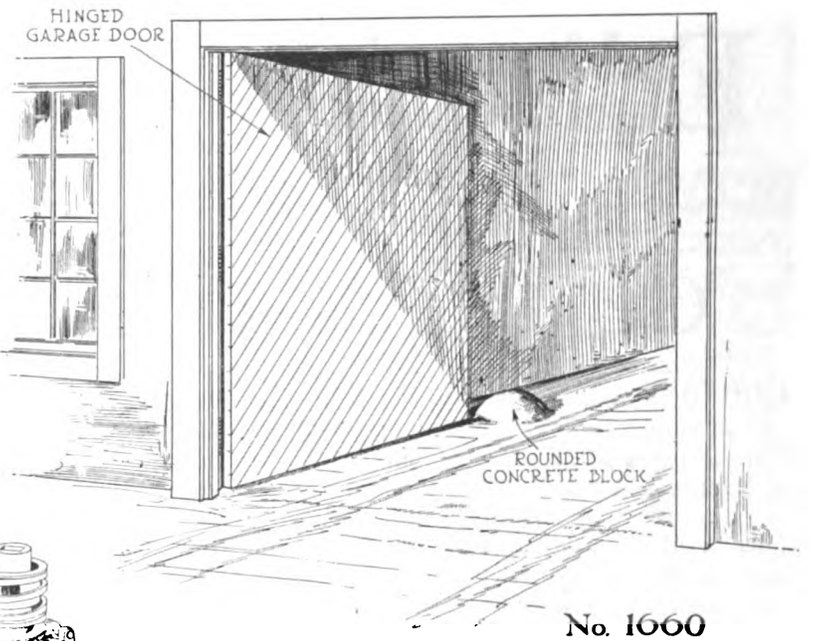
$1 a Helpful Kink

HOW often have you been compelled to rack your brain to overcome some difficulty? But when you did find a solution—what a satisfaction it was! Well, here's a chance for you to dig some of those life-savers out of their hiding places and put them to work for your fellow-craftsmen. Send them to Motor World. We will pay you a dollar for every one accepted for publication. The only requirements are these: 1—Describe the shortcut briefly but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with, and the town. Write plainly. If your name is unusual, print it in capital letters.

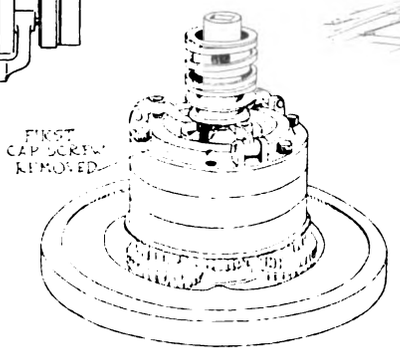
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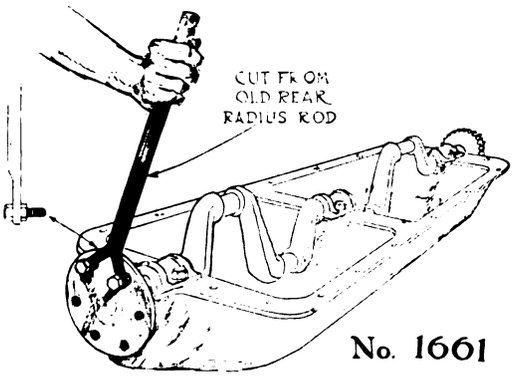
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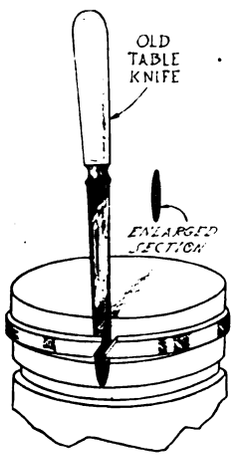
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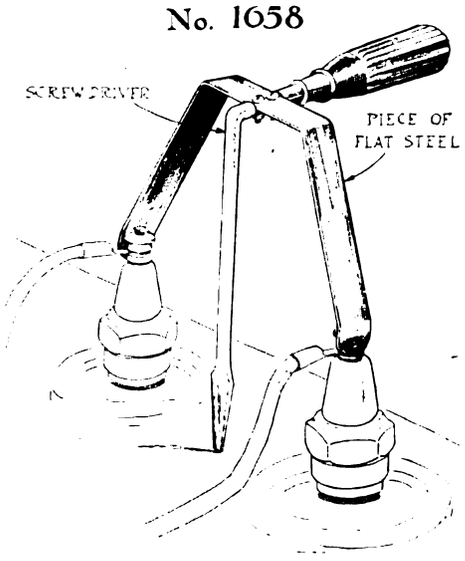
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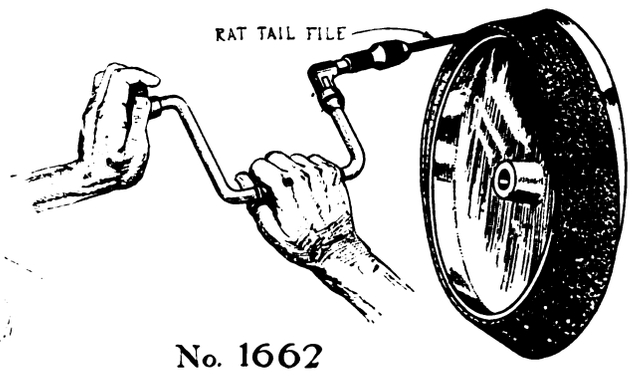
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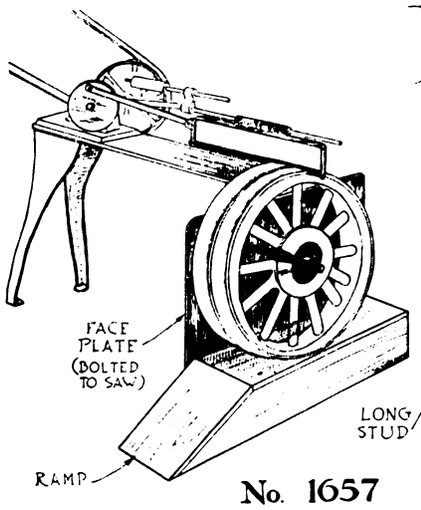
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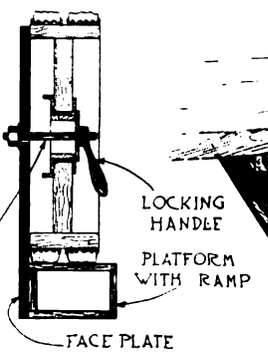
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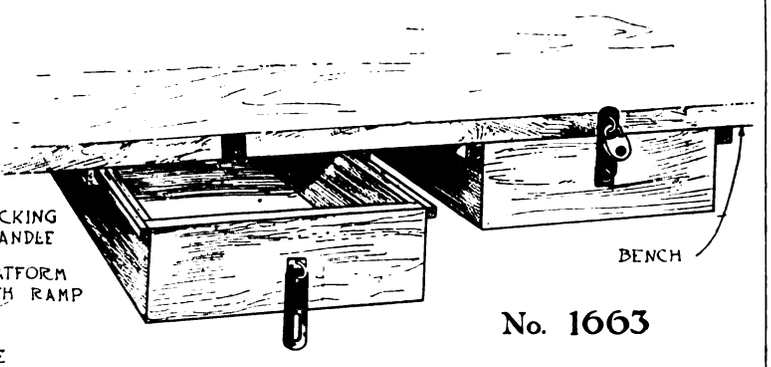


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No. 1657





No. 1663

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Editorial Observation

Get the Used Car Men Together

CHICAGO'S used car managers, from a dozen to 20 in number, have formed an association for the betterment of their section of the business along Michigan avenue.

It is an idea worthy of imitation.

These used-car men operate as a semi-business, semi-social group within the Chicago Automobile Trade Association and meet about twice a month to discuss the used car business.

One of their big objects is to uplift the business in which they are engaged. They realize that an evil odor has attached itself to the used car trade, and they propose to remove it, just as the parent association aimed at this end in holding its high-class used car show.

These used car men are the row's experts. They are the men who are called upon to act on the appraisal committees when a used car is held.

Each dealer considers his own man an expert and believes the used car manager is one part of the solution of the dealer's used car problem.

Therefore, when this group of mechanical wizards gets together it represents the assembly of the best used car brains in the second biggest city in the United States.

Probably this one group represents more used car knowledge and experience than any other aggregation in the world. From its meetings should come something valuable in used car ideas and plans.

The dealer himself is a many-sided man. He thinks of all departments. These used car men are specialists. They think of but one department and that the department of which the trade generally admits it knows the least.

In every dealer's organization there is some one man—maybe it is the dealer himself—who pays most attention to the used car end.

It would be worth while in every city in the country if there could be a formal or informal gathering once or twice a month for the consideration of used cars and nothing else.

It would give every dealer the benefit of the ideas of all the others and might put stability and profit into what is in too many towns a serious business situation.

The "Cops" and the Drive-aways

FROM several parts of the country have come reports that the drivers of cars from the factories are being unreasonably molested by the police. Generally it is the over-officious arm of the law in some lesser community, whose chief glory and object in life is to display his badge and march down Main Street to the "hoose gow" with a "prisoner." Authority always does go to the heads of some people, b'gosh!

One would believe that an officer of the law would, above all things, have at heart the welfare of the whole country and that he would be big enough to realize that a drive-away is only a war-time freight train; but we all know human nature, and we all know the "cop" has no such conception of his job or his duty to his country. If he were capable of such conceptions he wouldn't remain a small town "cop."

Therefore, it seems necessary that the dealers give serious attention to this matter. Every driver who is molested while en route from the factory should make that fact known to his employer. The dealer should at once communicate with the trade association in his own town.

This local trade association should then take the matter up with the National Automobile Dealers' Association, or, if a local man happens to be a national officer, it should get this local trade association representative on the job and representations should be made to the proper authorities. It is all nonsense that a small town official should be permitted to obstruct such a national benefit as the motor car drive-away.

In Pennsylvania practice similar to that outlined above was followed with the result that the state authorities ruled that the first and last cars of the drive-away should carry tags, thus running the train as one car, and that the cars in between should travel a certain distance apart and carry temporary markings only. This ruling was communicated to all the police officers of the state, with the result that there is no more interference by country constables.

The Pennsylvania representative of the national association is now taking the matter up with the police of a New York State city where similar trouble occurred.

The big point is that ALL such cases should be reported to some one and some action taken. Appeal by an individual dealer is not of much use. Action should come through an organization. Furthermore, if there is much trouble the associations should go to the state authorities and not monkey with petty officers.

Don't forget this: It is a two-sided matter. While real state officers may be willing to wink at a strict interpretation of the law so far as licenses are concerned, there is no excuse for drivers violating the speed laws. The dealers will only get themselves in wrong if they uphold what is clearly illegal and against the public welfare.

A driver who can't drive according to orders should not be permitted to drive. And the orders should be that driving should be at a moderate speed and at all times with safety to the public. If the drive-aways become speed carnivals it will not be long before they will get undesirable publicity and will be restricted everywhere. It's two-sided. Ask for reasonable law enforcement and not for privilege.

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Letters from Readers

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

Three Cars Per Driver

Editor Motor World: The Arkansas Valley Auto Co. of Pueblo, Col., Ford agent, enjoys the distinction of making the first interstate trip, handling three automobiles for each driver. The trip was made from Kansas City, Mo., to Pueblo, Col., by W. K. Hurd, proprietor; Wayne Torrey, service superintendent, and Jim Findley, mechanic, for the above firm.

The trip was made in 5 days, and one day was consumed in getting the cars in shape to travel, adjusting equipment, etc., leaving about 4 days for the 650 miles.

Three cars were handled by each driver, being connected with pull or towbars made up special in the shop.

The second motor, as well as the first, was run. This was accomplished by disconnecting the carbureter pull rod and putting a small spring on the carbureter to close it automatically. Then we attached a flexible wire cable to the carbureter through the engine in place of the pull rod, attaching a small pulley on the left-hand side of the motor, running the wire cable through this to the front car, so the driver in the front car could open carbureter as much as necessary, thus giving two powerplants for the three cars. From the third car we removed the universal joint (putting a short bushing in its place), and brakeshoes, so that it rolled very easily.

The trip was an entire success, and saved six drivers on the nine cars and quite a sum in money. In fact, it worked out so satisfactorily that Mr. Hurd is now handling all his cars from Denver in this way, and not only saves considerable money in transportation, meals, lodging, etc., but can keep his help down to the minimum during the war, which is a help to the country.—Arkansas Valley Auto Co., Pueblo, Col.

Lest You Forget

Editor Motor World: We enclose herewith tag, "Lest You Forget," which the Thermoid Rubber Co. furnishes for the dealer to tie on the steering wheel after he has installed new brake lining on a car.

You will note there are 18 inspections that every motorist should make regularly in order to keep his car in perfect condition.

We find that the dealers are very favorable to putting this tag on, as it refers to various items that mean business to them.—J. Walter Thompson Co., New York.



This is the tag the Thermoid Rubber Co. is supplying dealers to assist in the merchandising of brake lining

Entering Truck Business

Editor Motor World: I come to you for advice on a subject of vital importance to me, because I feel that whatever advice you can give me will be authoritative. And I assure you of my appreciation of the favor.

I am contemplating going into the motor truck business, yet I have no experience in that line of business. At present I am connected with one of the largest manufacturing concerns of its kind in the country as assistant advertising manager. I have in the past been assistant sales manager and advertising manager. So you will see that I have had a thorough business training.

Do you think it advisable, under the circumstances, for me to go into the motor truck business?

Would I require any preliminary training in that particular line?

What amount of capital would be required for the sale of a good, reputable truck in a city, say, like Cleveland?

Would you consider this a good time to go into the motor truck sales business, everything considered?

Would you advise trying to secure the agency for an electric truck instead of a gasoline truck in view of the threatened gasoline shortage or possible embargo?

Would it be possible to arrange with a motor truck manufacturer on a branch house basis instead of an independent dealer basis? Which arrangement do you consider best?

I trust you will pardon this intrusion on your time, and thank you in advance for the courtesy. Enclosed find stamped return envelope.—H. A. G., Canton, Ohio.

Answer—As to the advisability of entering this business it is hard to answer the question. You really will have to do that for yourself. This much we can say, however, that the truck business is now showing greater possibilities than it has shown for years, and from now on doubtless will be a fast coming business proposition.

As to preliminary training, we believe you would save yourself a great deal of worry and expense if you investigate the truck business quite thoroughly before starting in it.

It is difficult to answer your question as to the amount of capital. I have



The Arkansas Valley Auto Co. hooked three cars together in a recent drive-away, using the power plants of only two. The trip was an entire success

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had correspondence with several bankers lately on the question of their relation with automobile dealers, and one of the things they mention is the under-capitalization of the dealers. I suggest that you have a good talk with some banker whom you know on this subject, because he is the man you will have to meet a great many times while you are in business, and you might as well start in right with him.

As to the opportuneness of the present day for starting in the truck business, a good deal, of course, depends upon conditions, but it is true that the truck dealers are doing well to-day.

We do not believe the gasoline shortage should cause you to take on an electric instead of a gasoline truck. The situation does not seem that serious.

If you become a branch manager you will be on a salary and commission, whereas if you open up as an independent dealer you will derive all of the profits of whatever business you build.

Nine Hayneses in One Plant

Editor Motor World: We are enclosing with this letter a picture of the largest smelter in the world, which makes pig lead and paint and other articles. We are the Tri-State Haynes Motor Co. of Joplin, Joplin, Mo., headquarters, this being the leading zinc and lead field of the world.

The picture shows nine cars which is a 1918 proposition. They have other plants around close. This plant works over 1000 men. They are Haynes believers, as you see. Thought this might make an interesting story for your wonderful automobile journal, so we are sending same to you.

The manager of this firm is O. B. Whitaker. This firm started in its infancy the first of 1917, and at the present time we control quite a large territory, and doing a great business.—Tri-State Haynes Motor Co., O. B. Whitaker, Manager, Joplin, Mo.

Lansing-Ottawa Drive-Away

Editor Motor World: We believe one of the longest drive-aways took place last week when Messrs. E. K. Emerson and T. Roberts of Ottawa, Canada, took delivery of two Oldsmobile demonstrators at the factory in Lansing, Mich., and drove them home by way of Detroit, Cleveland, Buffalo, Rochester, Watertown and Ogdensburg, one of the features of the drive being a non-stop run between Cleveland and Watertown, leaving Cleveland, Friday, April 12, at 2:30 p. m., and driving all that afternoon and night and all day Saturday, arriving in Watertown at 9 p. m. Saturday.

The Olds company's "Oldsmobile in Transit" drive-away cards are all right for the States of Michigan and Ohio, but are not countenanced in New York, where the drivers were made to buy New York State licenses by the first traffic cop in Buffalo.

The roads around Cleveland are miserable, especially so after the fall of 4 in.



The Tri-State Haynes Motor Co. sold all these nine Haynes cars to the employees of the big smelting plant that is shown in the background

of snow, which fell shortly before they passed over the road. A truck was passed mired to the chassis in the mud.

Mr. Emerson, eastern Ontario distributer for the Oldsmobile, states that business has every prospect of being very good for the coming season, the selling season being just about to open in this part of the country.

The two new cars, a sportster and a seven-passenger touring, stood the trip wonderfully, and gave absolutely no trouble during the long run.—T. Roberts, Ottawa, Ont.

Watch Your Speed

Editor Motor World: Please be informed that when you drive new cars from Chicago that you drive not faster than 15 miles per hour on Twelfth Street. In West Chicago out past the Chicago speedway they are picking up three-quarters of the dealers who take that route out of the city. I personally saw them stop every car that passed on that street for 3 hours. That is, those who were dealers in drive-aways for Iowa, Nebraska and Dakotas. The fines imposed are from $12 to $20 per car, owing to the value of the car.—From Brother Dealer, Newton, Iowa.

Use Special Publicity

Editor Motor World: We are now starting our publicity, which we write up every week for different papers, which we think would be of assistance to other dealers throughout the country, and if the inclosed item interests you I would greatly appreciate your publishing same. —Williams Motor Sales Co., Springfield, Mass.

ALL BUY BONDS

Williams Motor Sales Company's Staff Subscribe Liberally

With a 100 per cent subscription to the third Liberty Loan the Williams Motor Sales Company passed its quota last Wednesday evening after a short speech by Mr. Williams in which he cited the case of Peter, the office boy, who came to him inquiring how he could buy a bond, as being typical of every true American citizen to-day.

After the meeting Mr. Williams made arrangements for an entertainment at the Y. M. C. A., where sales and service departments met in a game of indoor baseball. It was closely contested, but in the last half of the ninth, with the game a tie, Lewis Reed, the service manager, connected with one of Warner's wide curves for a clean single and Piquott slid under Roos with the winning run.

A relay race followed in which the sales department's fleet runners easily outdistanced the heavy team of the service department. May showed lots of speed, giving Brosseau a long lead, but Brooks quickly closed up the gap and won in a walk.

In the aquatic contest E. D. Stewart, sales manager, easily showed his superiority in the water by winning the 50-yd. dash and high dive.

G. A. Hay, office manager, closed an otherwise enjoyable evening by announcing his engagement and inviting those present to be his guests at a farewell bachelor dinner at the Kimball Hotel, April 26.

This is the first of a series of monthly meetings in which the Williams Motor Sales Company employees will discuss problems connected with their work.

Dealers from Ogdensburg, N. Y.; Providence, R. I.; Boston, Philadelphia, and Syracuse, N. Y., came to the Springfield Auto Storage last week to drive away cars that have been stored here during the winter. P. A. Williams, Jr., president of the Springfield Auto Storage Company, announces that he can still make arrangements for free transportation for anyone who wishes to go to Philadelphia, Washington, D. C., Richmond, Syracuse, Boston or Providence the last of this month.

Return Loads Bureau For Detroit

DETROIT, May 3—Plans are on foot to establish a Return Loads Bureau in Detroit. Letters are now being sent out to all truckmen of this city and chambers of commerce in the surrounding towns, to make a survey of the extent to which Detroit concerns are making use of motor trucks in sending supplies to nearby cities and what assurance there is of securing enough tonnage on the return trip. Arthur T. Waterfall, traffic manager of Dodge Brothers, is chairman of the transport committee which will have charge of the new bureau.

The 1918 edition of "Correct Lubrication," a booklet published by the Vacuum Oil Co., has been issued. Lubrication, as applied to all automotive vehicles, is discussed, and remedies for lubrication troubles suggested. A feature of the booklet is a table of every make of car, tractor, motorcycle, railway motor car and motor boat engine, showing the grade of oil to be used in summer and winter, in each part of the car.

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The RETAIL NEWS

PACIFIC COAST

C. W. Cole has opened the Midway Auto Radiator Works at 817 Eye Street, Bakersfield, Cal.

Meagher & Co. have opened a repairshop and vulcanizing plant at 1511 Eleventh Street, Bakersfield, Cal.

The Boyle Tire Co. has moved to new quarters at 1719 Chester Avenue, Bakersfield, Cal.

W. H. Ford and **E. Helm** have bought the Downtown Garage, Bakersfield, Cal., and will conduct it under the style Ford Downtown Garage. They have also opened salesrooms and will handle Premier cars and Standard trucks.

C. M. McCormack has opened salesrooms in the Temple Garage, Bakersfield, Cal., for the Grant car.

J. H. Cable has become sole owner of the garage and sales agency of the Cable & Gilbert Co., Bakersfield, Cal.

W. F. Hubbard has become sole owner of Hubbard's Garage, Bakersfield, Cal., having purchased the interest of H. R. Kanode.

W. G. Willoughby has bought the repairshop at 2216 Eye Street, Bakersfield, Cal.

Charles M. McMillan has sold his interest in the firm of Amell & McMillan, Bakersfield, and has opened a tire store and vulcanizing shop at 1514 Sixteenth Street. He will conduct this under the style McMillan Tire & Rubber Co.

Getchell & Radke have opened salesrooms at 1678 Chester Avenue, Bakersfield, and will handle Republic tires.

Williams & Karr, Dort, Franklin, Liberty and King dealers in Bakersfield, Cal., have moved to the former Overland building on Nineteenth Street.

J. W. Clemens and **C. E. Haley** have formed a partnership and will conduct a repairshop at Taft, Cal., under the style Taft Radiator & Lamp Shop.

A. A. Ayers, formerly owner of the Buena Vista Garage, has opened a repairshop on Center Street, Taft, Cal.

The Northwest Auto Co., Portland, has leased the building at Nineteenth and Alder Streets and will remodel it.

The Oldsmobile Co. of Oregon, Portland, has added an accessory line which will be in charge of F. E. Eddy.

The Poulson Auto Co., Aberdeen and Hoquiam, Wash., has bought the Rhines-Fearing Co., including the Grays Harbor County agency for Dodge Brothers cars. Salesrooms will be maintained in both cities.

The Burke Motor Car Co., Everett, Wash., has made extensive improvements in its salesrooms and has added an accessory department. The company has also taken on the Roamer and Hupmobile.

The Bardshire Motor Co., Seattle, has moved to a new building which contains display rooms, general offices, service department and shop.

The Pacific Retread & Vulcanizing Works, Seattle, has opened quarters at 601 Pike Street.

Charles S. Harper, Seattle, has opened the North End Willard Service Station.

E. M. Rusk, Seattle, has opened the Dreadnaught Tire Agency and will distribute Dreadnaught and Mohawk tires throughout the State of Washington.

The Spokane Auto Co. has opened new quarters at 820 Second Avenue, Spokane.

The Motor Truck & Tractor Co., Spokane, has moved to the building of the Sieler Auto Co., 1017 Sprague Avenue.

E. D. Van Dersel, E. L. Clark and **L. H. Clark, Jr.,** have bought the Garford truck division of the Inland Empire, Spokane. They will conduct their business under the style Western Truck & Tractor Co., at Sprague Avenue and Jefferson Street.

The C. L. Ross Automobile Co. has opened quarters in Vancouver, Wash., and will handle Hudson and Maxwell cars. The company's main office is in Portland, Ore.

New Garages

Temple Garage .....Bakersfield, Cal.
Liberty Garage .....Bakersfield, Cal.
Union Garage .....Bakersfield, Cal.
Corcoran Garage.....Corcoran, Cal.
Cate Garage .....Lindsey, Cal.
H. R. Kanode .....Taft, Cal.
Taft-Bakersfield Garage .....Taft, Cal.
Brown & Weatherstone.....Omak, Wash.
Spokane Auto Co.....Spokane
F. T. Andrews.....Vancouver

MIDDLE WEST

W. C. Harrison, Arrowsmith, Ill., has sold his garage to E. D. Ferris.

H. C. Boyd, Carlinville, Ill., has sold his interest in the Carlinville Garage to his partners, Homer and Stanley Wilson, who will continue the business.

The Bearings Service Co., Detroit, formerly located at Warren and Woodward Avenues, and the local branch, 997 Woodward Avenue, have moved to new quarters at Case and Willis Avenues.

The Miller-Judd Co., Detroit, Liberty distributer, has doubled its display room space through the purchase of the adjoining building. The new space will be given over to the sale of used cars.

J. W. Baker, Columbus, Acme motor truck dealer in central Ohio, has moved to a new salesroom and service station at 250 North Fourth St.

D. E. Jones and **Gerald Jones,** Toledo, have purchased the business of the Summit Tire & Supply Co., and will conduct a garage, vulcanizing and repair enterprise under the style Jones Garage & Supply Co.

A. E. Stephens, Broadhead, Wis., has sold his garage and Mitchell and Maxwell agency.

Ambrose Poole, Darlington, Wis., has leased the Rodham Garage and will conduct the business. He will also handle Oldsmobile, Stephens and Studebaker cars.

Arthur Eswein and **William Kronholm,** Grand Rapids, Wis., have opened a tire sales and repairshop with Haywood equipment, in the former Kalaher Building in that city.

The Rybold Auto Co., La Crosse, Wis., formerly styled Rybold & Weihaupt Co., has leased the garage and service station at 306 South Fourth Street.

The Truxtun-Hudford Sales Co., 188 Eighth Street, Milwaukee, will open salesrooms for the Truxtun-Hudford commercial car attachment. The company will be State distributer for the attachment.

Engle Bros., Neenah, Wis., have opened a shop and will specialize in repainting, trimming and other refinishing work on motor cars and trucks.

The West Bend Motor Co., Ford dealer in West Bend, Wis., has opened a branch garage and salesroom and service station at Kewaskum, Wis., in charge of Joseph Reichert.

New Garages

Pontiac Motor Co.....Pontiac, Ill.
Hubbard & Hubbard.....Quincy, Ill.
Evans-Emerick Motor Co.....Vandalia. Ill.
Schumann Motor Co.....Menominee, Wis.
R. H. Blackburn.....South Wayne, Wis.

NORTHWEST

Spencer & Perry, Afton, Iowa, have bought the Afton Auto Co.

E. H. Streepy & Son, Cincinnati, Iowa, have bought the Beall Auto Co., Albia, Iowa.

The Indian Oil Co. has opened a service station at Marshalltown, Iowa.

I. Speer, Milford, Iowa, has bought the Spangle garage.

Roy Hutchinson, Mt. Pleasant, Iowa, has bought the Universal Motor Co.

Ed Anderson & Son, Radcliffe, Iowa, have bought the Radcliffe Garage.

Claude E. Owens, Red Oak, Iowa, has sold his repair business to Cliff Sheets.

A. W. Baughman, Rockwell City, Iowa, has bought the City Garage.

C. F. Stumma & Son, Vinton, Iowa, have sold their garage to M. G. Naylor and John Shale.

The Central Auto Co., Waterloo, Iowa, has changed its style to the A. L. Alexander Co.

John Willardson, Albert Lea, Minn., has bought his brother's interest in the garage at Northwood, Iowa.

L. O. Anderson, Breckenridge, Minn., has bought Lud's Garage from E. E. Norton.

M. J. Lynch, Graceville, Minn., has taken over the Graceville Garage.

Robert Moore, Marshall, Minn., will open a plant for rebuilding tires.

Brooberg Automobile Co., Minneapolis, 1012 East Franklin Avenue, has been sold to F. H. and J. E. Fosberg.

L. W. Pitcher, operating the Minneapolis Battery Co., has leased the Electric Service Garage, Inc., 1921 Bryant Avenue S., for 10 years.

A. A. Harris, Triumph, Minn., has bought the interest of his partner, Roy Sturgeon, in the Triumph Motor Co.

Hebard, Diltz & Plocica, Asbarokee, Mont., doing business under the style Stillwater Garage, have dissolved partnership. Business will be conducted by William and A. Hebard.

H. K. Dimmick and **E. E. Templeton,** Ironton, Mont., have bought the garage of Edward Syverson.

John Parr, Park City, Mont., has bought the Sam Flood interest in the Trail Garage.

The Paine Garage, Grand Island, Neb., is being remodeled.

Wilson's Garage, Hebron, Neb., will occupy the Hathaway Building.

C. V. Bullock, Jr., has purchased the Kimball Steam Vulcanizing Works at Kimball, Neb.

The Midway Motor Co. has opened a battery repairshop at North Platte, Neb. The company's main office is in Kearny, Neb.

The Ford Garage, Ord, Neb., has moved into a new building.

S. R. Perry & Sons have bought the Brewer Garage at Sidney, Neb.

Harry Diedrich, Dickinson, N. D., has sold his interest in the Dickinson Motor Car Co.

Paul Schmall, Golden Valley, N. D.. has bought the J. F. Smith Garage.

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Gilbert Johnson & Sons, Van Hook, N. D., has bought Motor Inn from Christ Hegstad.

A. K. Chapman has leased the repairshop of the Central Garage Co. at Laramie, Wyo.

Pipestone Motor Co., Pipestone, Minn., has been opened as a branch store of the Northwestern Motor Co., Sioux Falls, S. D.

New Garages

Taylor Motor Car Co.....Griswold, Iowa
Charles Foog.....Guthrie Center, Iowa
Harlan Tire Repair Co.....Harlan, Iowa
Burns Auto Co.....Sheldon, Iowa
McClurg Brothers.....Spencer, Iowa
Joseph A. Clark.....Waterloo, Iowa
Paul S. Walters.....Luverne, Minn.
Walter Abar.....Minneapolis
Heck Garage (addition)....Pipestone, Minn.
J. S. Percy.....Sturgeon Lake, Minn.
T. J. Angell.....Anaconda, Mont.
J. E. Mace.....Dix, Neb.
Lee & Larson.....Kimball, Neb.
Faulhaber Brothers.....Kimball, Neb.
J. H. McMaken.....Plattsmouth, Neb.
Lincoln Highway Auto Co.....Potter, Neb.
H. H. Hewitt (addition).....Minot, N. D.
C. A. Bramer.....Aberdeen, S. D.
Charles Benson.....Claremont, S. D.
Hank & Kessler.....Cheyenne, Wyo.
E. Phillips.....Laramie, Wyo.

MOUNTAIN

The Fort Collins Motor Co., Fort Collins, Col., has been bought and will be conducted by the Fort Collins Motor & Livery Co.

The Griffith Coal Co., Riverton, Wyo., has taken over the garage formerly conducted by J. C. Fowler & Co. A repairshop will be run in connection with the garage.

James Findlater, general supervisor of Pacific coast business for the past eight months, has been appointed to the office of sales manager of the Briscoe Motor Car Co., Jackson, to succeed L. E. Willson, who resigned May 1. Willson will be connected with the Brown, Willson Co. of Chicago and Des Moines and will handle automobiles at wholesale and retail.

SOUTHWEST

The M. L. Meek Motor Co., Ellsworth, Kan., will shortly install new equipment for overhauling and repairing automobiles.

Thoren & Pinnick, Goff, Kan., have sold the Goff Whiteway Garage to Clyde Cozad of Norton.

F. W. Hamilton, Holton, Kan., has opened a repairshop.

S. J. Carter, Leroy, Kan., has bought a half interest in the Holmes Garage.

A. W. Lee, Solomon, Kan., has bought the Golden Belt Garage from Norman McKenzie.

Floyd McAllster, White Cloud, Kan., has bought a half interest in the Casteel Garage.

O. N. Alley, Mates Center, Kan., has bought out the Ray Stold Garage.

Henry F. Cummins, Winfield, Kan., has purchased the service department of the Drennan Motor Co.

The Halliburton Garage, Brunswick, Mo., is being put into good working order; extensive improvements have been started.

Fred Champlin, Greenville, Mo., has bought the Highway Garage.

H. E. Darby, Marceline, Mo., has opened a vulcanizing and repairshop.

The Park Automobile Co., St. Louis, has leased a salesroom in the Henry Service Co. Building for Chalmers and Peerless cars.

The Craig Auto Tire Co., St. Louis, has opened quarters at 2320 Jefferson Avenue, and will deal in seconds, wholesale and retail.

Jett & Mautz, St. Louis, have opened a service station for Vesta batteries.

The Kolbrener Brothers Auto & Tire Co., St. Louis, has opened salesrooms at 3027 Locust Avenue for exchanged Fords and tire seconds.

The Universal Tire Co., St. Louis, has moved to larger quarters at 3216 Locust Avenue and has changed its style to Wagner Tire Co.

C. F. Wantland and **Joel Brown,** Edmond, Okla., have bought the Edmond Garage.

The Security Motor Co., Oklahoma City, has moved into new quarters.

Joe Turner, Pawnee, Okla., has purchased the Onlyway Garage and has taken charge.

Ford L. Marks, Waurika, Okla., has sold the City Garage to Floyd Sullivan.

Capital City Auto Co., Austin, Tex., is now under new management. P. W. Booth has been appointed receiver and F. H. Taylor will have charge of the tire department.

Elvia Sanders, Center, Tex., has sold his interest in the Sander & Bruce Garage to E. I. Bruce.

Luther Larrison, Corsicana, Tex., has bought out the interest of Frank Carter in the Larrison & Carter Garage.

Gus Farris, Chilton, Tex., has bought the Chilton Garage from W. H. Calvery.

H. L. Carpenter, Greenville, Tex., has purchased the interest of T. O. Hudspeth in the City Garage.

Andy Jay, Quanah, Tex., has bought the interest of Will Runder in the Panhandle Garage.

W. Gorman, Seymour, Tex., has sold his supply business to Ed. Webb.

New Garages

Dean & Whigtail (addition)...Altoona, Kan.
George Petersen.....Atlanta, Kan.
Lewis P. Atherton.....Augusta, Kan.
Buffalo Motor Co.....Buffalo, Kan.
H. M. Hosey.....Buffalo, Kan.
Miller Co. .....Clay Center, Kan.
H. B. Hariss.....Hanover, Kan.
Britt & Christ.....Harveyville, Kan.
Saunders' Garage.....Holton, Kan.
Jake Moore .....Independence, Kan.
Dean Elwell.....Neodesha, Kan.
Floyd Tarr.....Neodesha, Kan.
Baker & Frasier .....Pittsburgh, Kan.
Slason Garage (addition)...Plainview, Kan.
J. W. Farmer & Son.....Pratt, Kan.
W. H. Surprise.....Rock, Kan.
Lee Council.....Rock Creek, Kan.
Salina Auto Co.....Salina, Kan.
A. W. Lee.....Solomon, Kan.
Floyd Bowers.....Spring Hill, Kan.
M. Crawford.....Starl, Kan.
J. H. Cummins.....Virgil, Kan.
Peoples Auto & Storage Co...Wichita, Kan.
Muencks & Perry.....Chamois, Mo.
Highway Garage.....Greenfield, Mo.
Peculiar Garage.....Peculiar, Mo.
Helvey & Berry.....Warsaw, Mo.
Tom Cooper.....Ardmore, Okla.
Scanlon Brothers.....Bartlesville, Okla.
Wighton-Beck Motor Co.....Nowata, Okla.
Walter J. Harris.....Clarkesville, Tex.
T. C. Cheaney.....Gainesville, Tex.

EAST

The Howell Motor Car Co., Liberty distributor in Boston, has recently changed its corporate style to the J. H. MacAlman-Howell Co.

The Indiana Tire Sales Co., New York, has moved to new quarters at 136 West Sixty-fifth Street, adjoining its former salesroom.

The Circle Auto Supply Co., 1698 Broadway, New York, has changed its style to Ryan & Hughes.

The Great Western Automobile Radiator Co. has opened an accessories store and garage at 1805 Market Street, Philadelphia.

The Lane Motor Truck Co. has opened salesrooms at 2937 Broadway, New York. This is a branch of the Lane Motor Truck Co., Kalamazoo, Mich.

The Central Motor Tire Co., now at 11 South Eighteenth Street, Philadelphia, will move to new quarters at 1801 Market St.

New Garages

H. H. Paul.....Market Street, Philadelphia
T. J. Hickey..6145 Oxford Street, Philadelphia
H. N. Makeshian...Larchwood Ave., Phila.
M. Durkin....Courtland Street, Philadelphia
A. Forepaugh.....Pratt Street, Philadelphia
William Burstein..Mantua Ave., Philadelphia
James T. Finnessey....1220 26th St., Phila.

Here Is a Good Envelope Stuffer

USED CARS

USED CARS are not always *abused cars.* We are constantly taking in cars on new Chalmers cars. These cars are, as a rule, dependable and still have lots of service left in them. We are very careful in making trades to see to it that the used cars have not been abused and that they are in usable condition when we get them.

If you contemplate the purchase of an automobile and feel that the higher prices of the new cars are prohibitive we suggest that you look over our stock of used cars. Our plan of selling same will make it absoluutely certain that the car is going to give satisfaction.

Yours truly,

FORT DODGE AUTO CO.

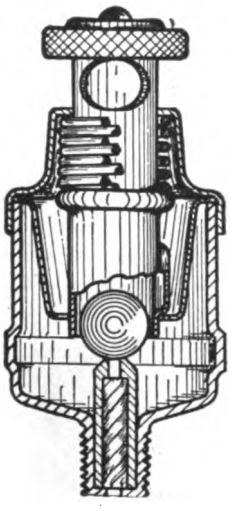
It is used with good results by the Fort Dodge Auto Co., Fort Dodge, Iowa

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Accessories

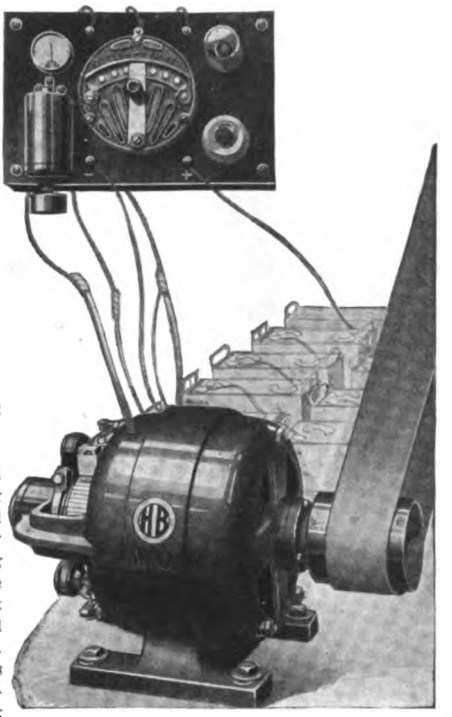
CONSOLIDATED AUTOMATIC OIL CUP

An oil cup with ball valve which is upset by vibration of car, permitting oil to drop onto bearing during time of vibration and shutting off the supply at other times. Made in various exterior shapes with the same internal characteristics.—Consolidated Machine Co., Detroit.



HB BATTERY CHARGING OUTFIT

A battery charging outfit consisting of generator and switchboard panel, to charge at once seven 6-volt batteries or their equivalent. The generator is belt-driven from line shaft or engine, requiring 1 hp. to operate. Switchboard is fitted with ammeter, pilot light, field rheostat, circuit breaker, fuses and cutouts. Outfit can be bought on extended payment plan.—Hobart Bros. Co., Troy, Ohio.



STAY-ON PETCOCK WRENCH

An extended handle to turn oil-level petcocks on Fords. The inner end is a socket which fits over petcock handle and is locked there, the rod extending out between the fender and runningboard shield with handle outside. A spring rests on fender to prevent rattling. Price 35 cents.—G. & H. Mfg. Co., 21 E. Fourth Street, New York City, manufacturer, Motor Car Equipment Co., 21 W. Sixty-second Street, New York City, distributor.



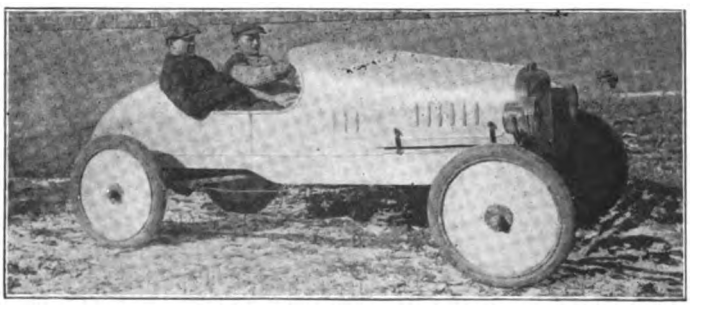
A. & H. VALVE TOOL

A combination of four valve tools in one, to recut outside stem threads, take off hexagon nuts, remove broken plungers and ream rough nipples. Retail price $1.50, dealer price $1.13.—A. & H. Mfg. Co., Inc., 505-507 W. Forty-fifth Street, New York City.



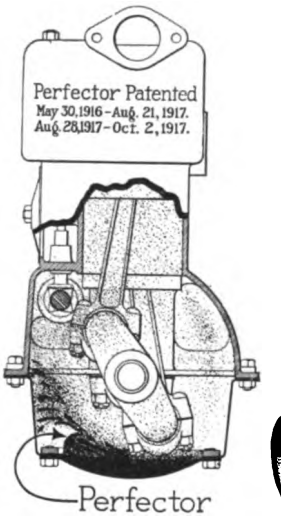
PACO RACING BODIES FOR FORDS

Racing bodies for Fords with low comfortable seats, receding rear end and long sloping hood and cowl. Lowest point of body is 8 in. below frame, hiding crankcase. Made of heavy gage sheet steel, oak sills and oak frame for dash. Bodies shipped ready to mount on chassis. Same steering post and pedals are used, complete fittings being furnished to lower steering column and fit pedals. Illustration shows Model 21 with disk wheels and V-radiator.—Paco Mfg. Co., Galesburg, Ill.



PERFECTOR OIL DEFLECTOR

A strip of sheet metal clamped under the reinforcing strip of the Ford engine base, its curved surface extending upward toward the crankshaft to intercept and deflect downward the excess oil splashed out of the pockets by the connecting rods. It is claimed that the oil which gets past the deflector is in the form of a mist for proper and efficient lubrication. Can be easily installed by removing crankcase lower cover and placing Perfector under reinforcing strip without any changes in engine. Price 50 cents.—Perfector Mfg. Co., Baker-Detwiler Building, Los Angeles.

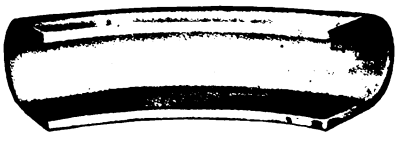


QUAD-LAC WATERPROOF FINISH

A liquid finish for leather, Pantasote, mohair, cushions, etc., and for finishing brass and nickel in a black luster. Can also be used to touch up marred spots on bodies. Dries in 15 minutes.—Hall-Thompson Co., Hartford, Conn.

AKRON-WILLIAMS SOLID REDUCING SHELLS

Reducing shells for utilizing large molds for making repairs on small casings. Shells may be inserted or removed in a moment and are accurately machine finished with shell in contact with mold at all points. Made in 4½-5, 3½-4, and 2½-3. Size for sections an inch larger in each case. Prices from $15 to $23 depending on size and whether 1/5 or ¼ circle. Price of shell does not include bead molds.—Williams Foundry & Machine Co., Akron, Ohio.



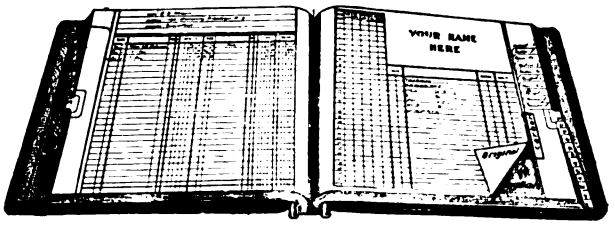
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AKKURATE LEDGER

The "Akkurate" self-indexing ledger and statement system is designed especially for garagemen and supply dealers. It aims to give them in one book a simple and positive method of keeping accounts accurately without the aid of an experienced accountant and the more elaborate system of daybook, ledger, order book and statement pad.

Only one entry of any transaction is necessary, instead of the three or four usually made. Each entry is carboned onto a duplicate sheet (both carbons and duplicate sheet being furnished). At the end of the month a final entry is made, and the statements are then ready to be mailed.

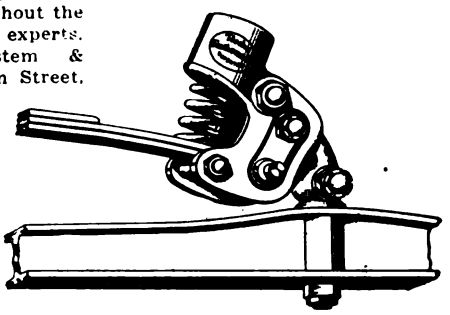
The system is contained complete in one loose-leaf book, with the proper alphabetical indices for easy reference. Under each letter the pages are indexed under the names of the customers. Additional pages are furnished upon order, to be inserted in the Akkurate as needed.



The maker claims for it an obvious convenience and a simple method of assuring a proper record of all transactions, a saving in time of billing and rendering statements, and the certainty of retaining a record of all sales after the bills are submitted, thus permitting an easy audit of all accounts. The fact that this is all possible with one book is the manufacturer's chief selling argument. A number of other systems are also made, designed to meet the need for a more careful record in garages and supply stores than is usually kept without the services of bookkeeping experts. —The Accurate System & Manifolding Co., 12 Elm Street, New York.

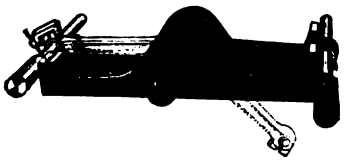
FEATHERRIDE ABSORBERS FOR FORDS

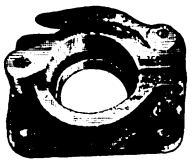
Coil-spring absorbers to check side sway and absorb rebound, consisting of two small malleable iron jackets, a heavy steel coil spring and two bolts. They fit over the front and rear shackles. Nothing on the car is removed or disturbed and the absorbers can be attached in a few minutes. Price $7.50 per set of four.—Roche Electric Mfg. Co., 215-17 N. Division Avenue, Grand Rapids, Mich.



STORM CONNECTING ROD GAGE

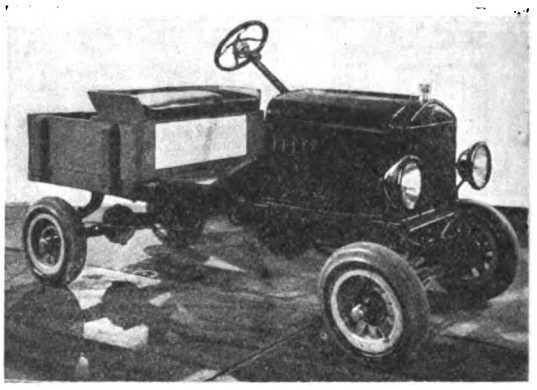
A gage for straightening and aligning Ford connecting rods, consisting of a casting or gage which is fastened to the bench, arbors for the crank end and piston pin end and a clamp to tighten split end on arbor. The testing surfaces are accurately ground and rod is accessible while in gage, and can be quickly inserted and removed. The testing surfaces show misalignment in both directions. Price $24.—Storm Mfg. Co., Thompson, Iowa.





STORM PISTON VISE

A vise to hold Ford pistons while working on rings, bushings, pins, connecting rods, etc., consisting of a plate mounted on the bench, a hinged jaw and an eccentric lever to lock the piston in the vise. Jaws are lined with soft metal to protect piston, and a winged nut allows variation in opening to allow for over-size pistons. Large opening in center allows connecting rod to drop through. Price $10.—Storm Mfg. Co., Thompson, Iowa.



RUE-FORD SHOP TRACTOR

A shop tractor capable of hauling 15-20 tons is being made from a standard Ford chassis by the Rue Motor Co., 2441-45 Michigan Boulevard, Chicago, by decreasing the tread to 38 in., wheelbase to 82 in., and using a greater gear reduction and smaller wheels. The gear reduction is 4:1 instead of 3 7/11:1; wheels are artillery type fitted with 20x5 in. Fisk solid tires. With the standard Ford gear ratio and 30 in. tires, the vehicle moves forward 26 in. per revolution of the engine, while with the new gear reduction and smaller wheels, it moves only 15¾ in. Price with small box body and seat, $725.



LIBERTY GUN

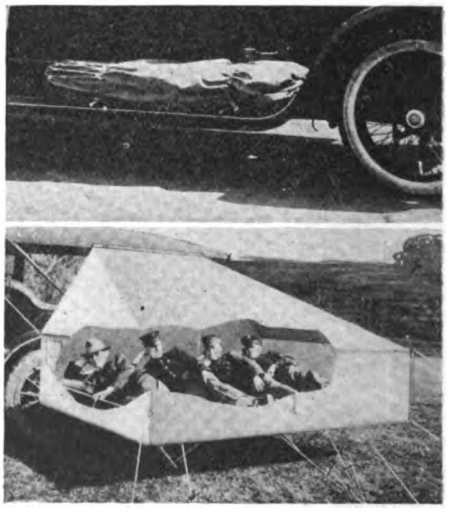
A radiator ornament comprising a small copy of a naval gun with sighting apparatus, elevator and breech lock. Made of durable composition metal, reinforced with steel and nickel plated. Price $5.—Liberty Sales Co., 366 Fifth Avenue, New York City.

MACBETH LENS

Lenses to give long range and ample side lighting. Lenses have horizontal prisms to deflect the light and green visors to redirect the upward rays downward. Made to fit all standard size lamps, $5 per pair. Set of Fords, $4. West of Denver 50 cents higher.—Macbeth-Evans Glass Co., Pittsburgh.

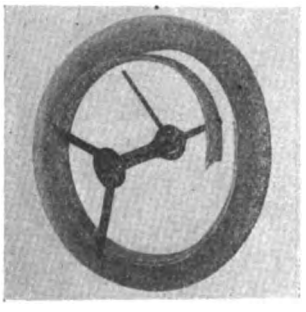
WITTMAN AUTO-CAMP

A complete camping outfit consisting of tent, bed with flexible mat, tourist trunk and all attaching accessories. The bed is a patented one-legged construction that is not sagged or rocked out of the floor line no matter where the weight is placed. The bed and tent fold up into two packages. Camps with sleeping capacity of 1 to 4 persons at prices from $45.30 to $80.40. J. H. Wittman Mfg. Co., 347 Fifth Avenue, New York City.

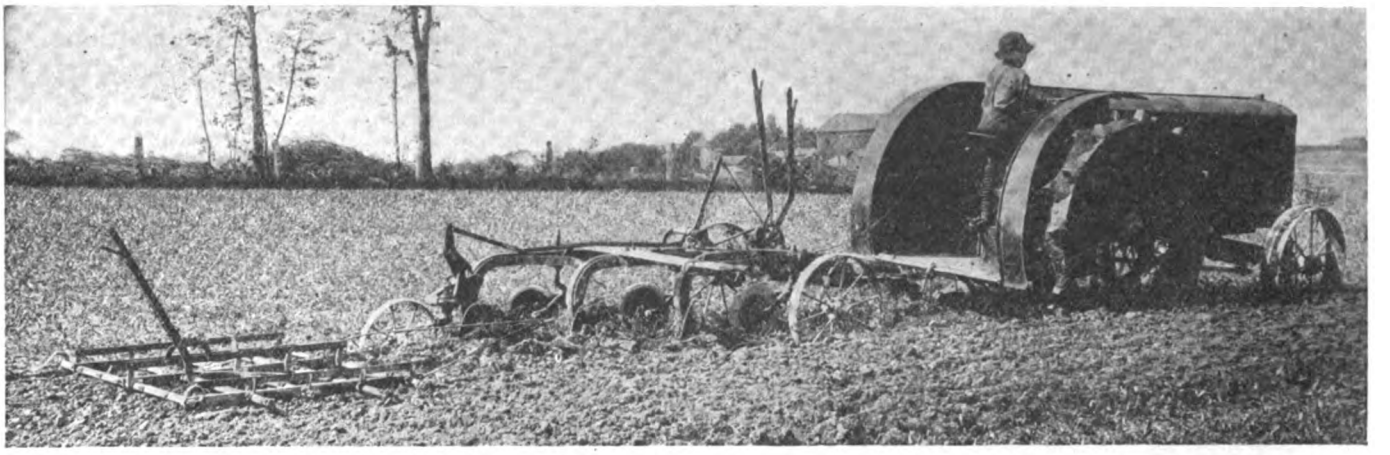


MILLION RIM TOOL

A combination rim tool and emergency jack to remove and replace all makes and sizes of split rims without other tools or attachments. Can be folded up in small space. Two hooks on the tool are stationary and the third is attached to a screw ¾ in. diameter, No. 6 square thread. Price $2.50.—Million Motor Co., Adrian, Mich.



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Lauson Building New Kerosene Tractor

"Full Jeweled" Model, with Unit Assembly Throughout and Dust-Proof Construction, Will Sell for $1,800—Can Pull Four 14-In. Bottom Plows

THE outstanding features of the new Lauson Full Jeweled kerosene tractor, manufactured by the John Lauson Mfg. Co., New Holstein, Wis., are unit assembly all the way through so that any part can be reached without disturbing any other part; anti-friction Hyatt or Timken bearing on every shaft; dust proof construction, which extends to the bull gear and the bull pinion, which are enclosed in a dust proof housing and which run in oil; special adaptability for belt work.

The tractor is of the 4-wheel type, is rated at 15 hp. on the draw bar and 25 hp. on the belt, although the engine will develop at least 20 per cent greater power as a reserve for emergency use. It weighs 5550 lb. without fuel, water, oil and lugs, distributed two-thirds on the drive wheels and one-third on the steering wheels. It has a plowing speed of 2½ m.p.h., a low emergency of 1¾ m.p.h., and a reverse. It will pull three 14-in. bottom plows under average conditions, and four under favorable conditions, and has belt power capacity for the largest sized silo filler or a grain separator up to 30 in. cylinder. It sells for $1,800.

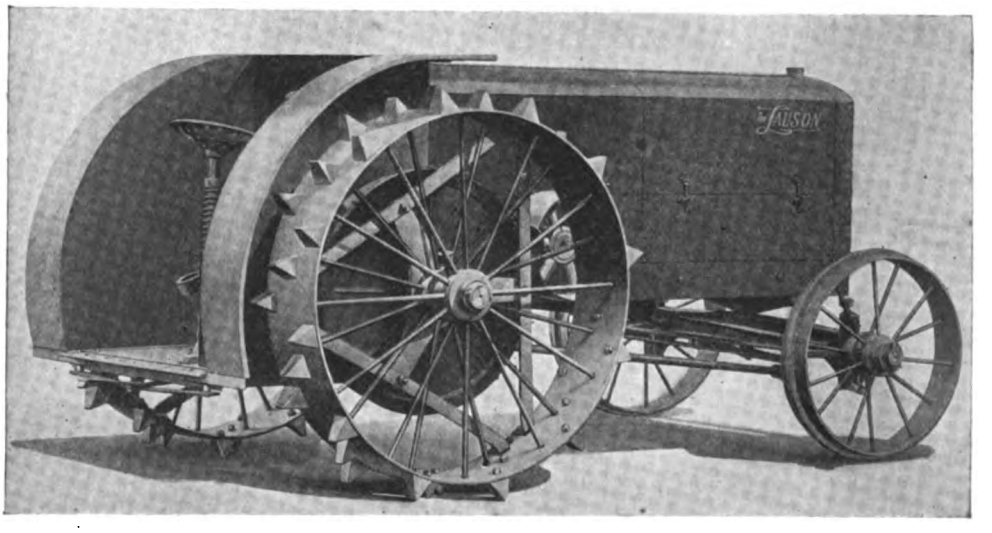
Unit assembly and accessibility of parts are emphasized in the construction. Beginning with the flexible Clark universal coupling between engine and transmission, so that either may be reached without interference with the other, the principle of accessible unit construction is maintained throughout. Simplicity of construction also is a feature, particularly in the transmission, where gears have been reduced to a minimum.

Herein the unit construction prevents the possibility of spreading in the differential unit, as the secondary drive and the compensating gears constitute a complete unit and are an integral part of the transmission. The bull pinion shaft is splined so that it can be drawn out, making the differential unit removable. The cylinder head of the engine is readily removable, giving ready access to the cylinders and facilitating the grinding in of valves. The lower half of the crankcase has a plate at the bottom which can be removed, giving easy access to the crank bearings.

In all, 24 sets of anti-friction Wyatt and Timken bearings are used, giving rise to the name Full Jeweled. The rear axle is equipped with heavy duty Hyatt roller bearings, while the front wheels are supplied with dust proof hubs and Timken roller bearings. All shafts in the transmission, as shown in the illustration, have Hyatt roller bearings, and the fly-ball governor is mounted on ball bearings. The connecting rod bearings are brass backed and asbestified and have four bolts, insuring rigidity and providing a wider margin of safety.

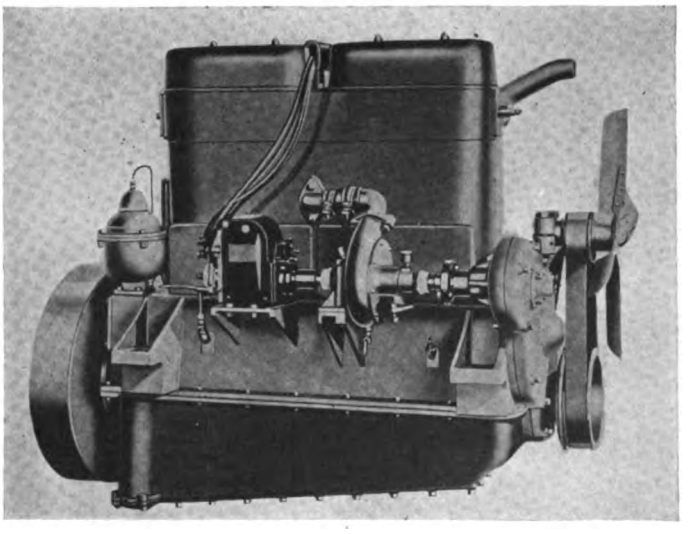
All working parts are thoroughly protected against dust and dirt. The crankcase and the transmission case are dirt and dust proof, and the bull pinion and bull gear are enclosed in a dust proof case with felt ring joint and run in oil. As open gears usually are the first part of a tractor to wear out, and as they frequently last through one season only, this enclosing of the bull gears on the Lauson will materially lengthen the life of the tractor.

The fly-ball governor, of the company's own design, is an integral part of the engine, is enclosed in a dust proof case and also runs in oil. It is driven direct from the cam shaft, thus obviating the necessity of a governor belt. As an additional precaution against dirt the engine, transmission case and fuel tanks all are covered with an automobile type hood. This enabled the designer to give the



The Lauson tractor, showing complete enclosure of mechanism

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Lauson-Beaver engine

Lauson Tractor Specifications

Engine	Lauson-Beaver, 4-cyl., 4½x6, valve in head
Ignition	Sumter-Dixie
Carbureter	Kingston, Bennett air cleaner as standard equipment
Radiator	Perfex
Clutch	Internal expansion
Control	From back platform
Transmission	Selective
Pulley	Diameter 18 in., face 8 in., speed 475 r.p.m.
Wheels	Drivers, Diameter 54 in., face 12 in. Front—Diameter 32 in., face 8 in.
Wheelbase	86 in., length overall 136 in.
Width	74 in.
Height	62 in.
Tread	52 in.
Road clearance	11½ in.
Draw bar height	17 in.
Turning radius	20 ft.
Capacity of fuel tanks	13½-gals. (gasoline and kerosene)

machine artistic lines, something which will appeal to the taste of the average farmer.

The Lauson tractor is not merely adaptable to belt work, it was especially designed to work on the belt. When the transmission is thrown into neutral the pulley derives its power directly from the engine and thus practically the whole power of the engine is transmitted to the belt. This is shown in the illustration of the transmission.

Lubrication is by pump which automatically oils all bearings and gears, including the governor and cam bearings. Oil is forced into the crank shaft bearings by the pump under 30 lb. pressure through ducts bored in the cheeks of the crank shaft. This force feed lubrication system is supplemented by the ordinary splash system.

Gears are of hardened chrome nickel steel. Bull pinions are of steel and bull gears of semi-steel, all machine cut. The bull gear has 3½ in. face.

The draw bar hitch is of standard height, 17 in., and a stationary draw bar is used for plowing, thus providing the approved hitch when two wheels run in the furrow. For harrowing and other work a swinging draw bar is furnished.

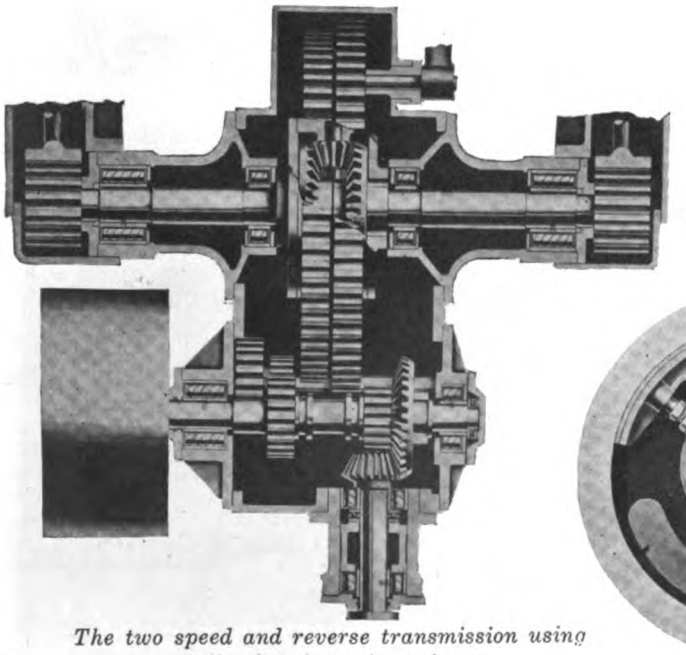
Ohio to Improve Buffalo Road

DETROIT, May 6—Two of the most important roads in northern Ohio are scheduled for improvement this year. They are the Ashtabula-Conneaut link of the Buffalo route and the Northfield Road from Cleveland to Akron. It is hoped to have the work started on both roads this season. The Cleveland Automobile Club has for a long time been urging the expenditure of State funds on these highways. Committees have pointed out the commercial as well as military value of these roads. When the Conneaut link is completed a hard surface road will run from Toledo, by way of Cleveland, to Buffalo. Traffic between Akron and Cleveland is greater than between any other two cities in the State, and Akron industries are said to be almost entirely dependent on highway transport to Cleveland.

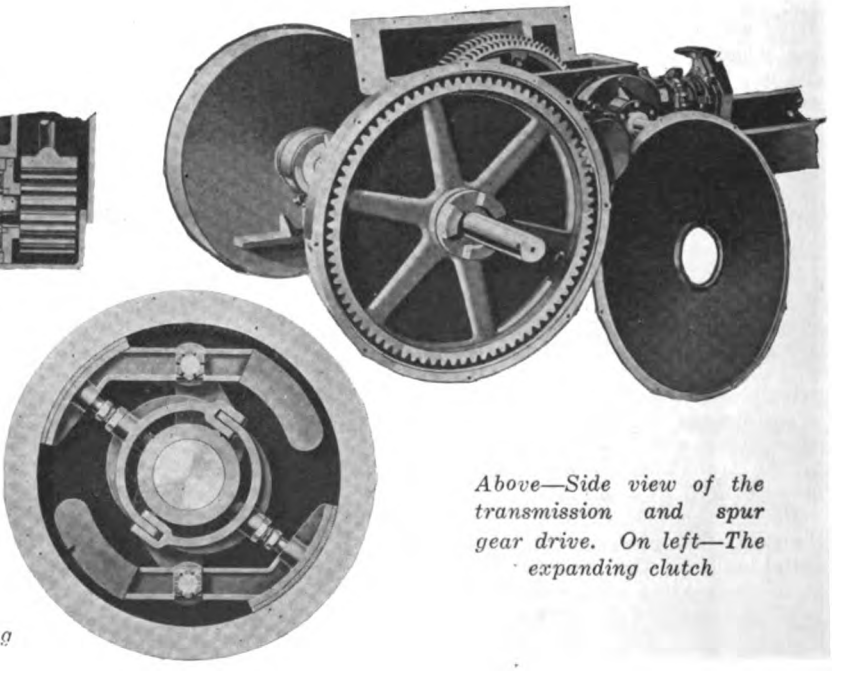
Work of N. A. D. A. Committee Endorsed

WASHINGTON, May 6—The Commercial Economy Board, of which A. W. Shaw is chairman, has endorsed the work of the War Service Committee of the National Automobile Dealers' Association. President F. W. A. Vesper to-day reported to Chairman Shaw the recommendations of the committee, which were printed in Motor World April 24, whereupon the job of developing the recommendations was turned over entirely to the N. A. D. A.'s committee.

A meeting of the war service committee and the board of directors of the association will be called for some date in May as soon as President Vesper reaches his home in St. Louis. He left to-day.



The two speed and reverse transmission using roller bearings throughout

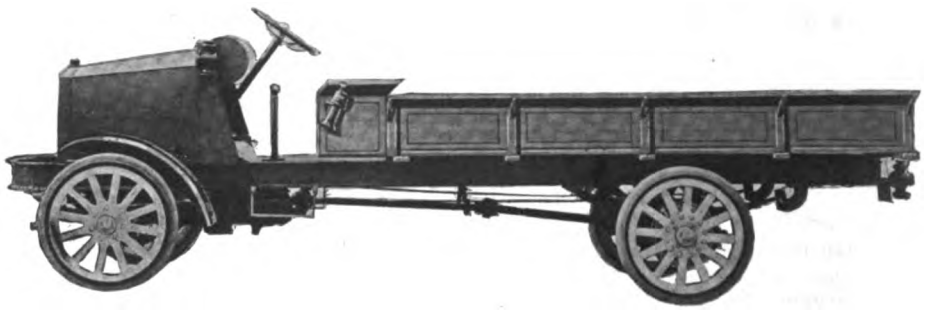


Above—Side view of the transmission and spur gear drive. On left—The expanding clutch

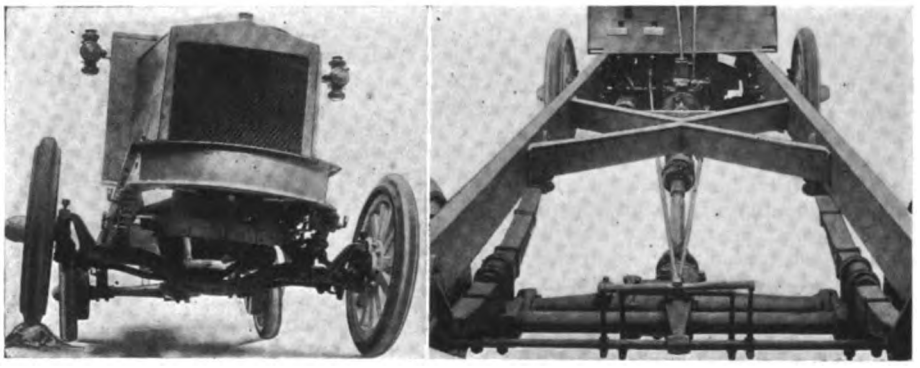
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Two-Ton Traffic Truck To List at $1095

New Company Will Market Vehicle with Standard Components



The Traffic truck equipped with low-side delivery body



The frame is strongly braced though thoroughly flexible

THE Traffic Motor Truck Corp., St. Louis, which was organized during the past year with a capital of $500,000, is going to put out a 4000 lb. truck to sell for $1095. A gray 35 hp. four-cylinder valve-in-head engine is used, the valve mechanism enclosed by a casting which is held in place on the head by two acorn nuts. The engine is 3½ x 5 in., and uses a Carter carbureter fed by gravity from a tank located on the dash. A hot-air attachment is fitted, the flexible metal hose leading across the top of the cylinder block to the exhaust manifold. A flexible control rod from the choker leads to the dash. Priming cups are provided on each cylinder, immediately beneath the spark plugs. An impulse starter is installed on the Kingston high-tension magneto. Lubrication of the engine is by a gear pump and splash system.

The cooling system operates on the thermo-syphon principle, having a cellular radiator with a 16 in. steel fan. The radiator is considerably narrower than the frame, and is well back from the front so that it is protected from injury.

The transmission members are assembled from well-known units embracing a Borg & Beck disk clutch, a Covert three-speed gearset, and a Russel internal gear drive rear axle. The propeller shaft is a two-piece member with three universal joints and the alignment of the front shaft is maintained by a self-aligning ball bearing. The wheels are heavy, have 2 in. spokes and steel rims and are fitted with Fisk pressed-on-type tires, 34 x 3 in. in front and 34 x 4 in. in the rear. Semi-elliptic springs of silica manganese steel are provided all round and these are lubricated by oil cups instead of grease. Both sets of springs are lined directly beneath the frame side rails. Two sets of brakes operate on the rear wheels, of the internal expanding and external contracting type. The front axle is I-beam with Timken bearings in the wheels.

Structural steel is used in the frame, which is 156 in. over all length, with bound and gusseted cross members. The center cross frame member is in the form of an X. The front cross member acts as a bumper, being rounded for this purpose. The length of the frame back of the driver's seat is 122 in. Wheelbase is 133 in., tread 56 in., turning radius 26 ft. and road clearance 12 in.

Steering is on the left side with control levers at the center and a foot throttle is in addition to the regular hand throttle. The regular equipment includes two side oil lamps, tail lamp, horn, jack and complete set of tools. The weight is 3300 lbs.

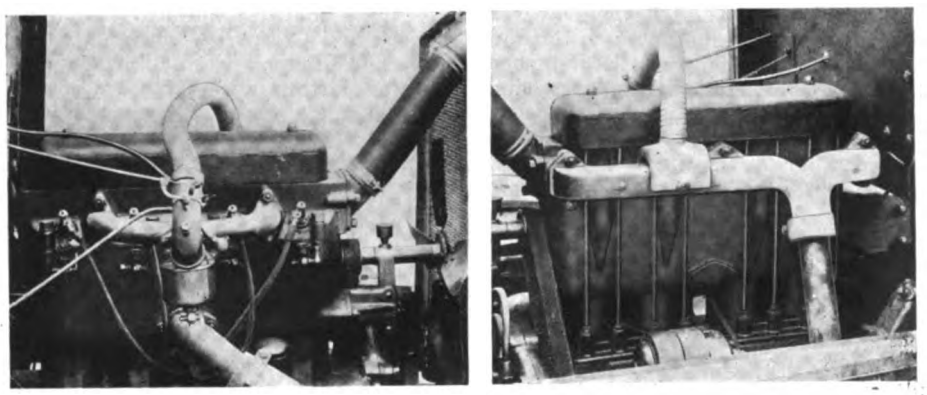
H. P. Mammen is president of the company, being formerly sales manager of the Westcott Motor Car Co. The vice-president and general manager is T. C. Brandle, also president of the Brandle Motors Co., St. Louis, distributer for Westcott and Chevrolet cars. The secretary and treasurer is Guy Wilson. The engineer in charge of construction is E. R. Martin, formerly associated with the Marmon and Westcott factories.

New 1-Ton Commerce Truck

DETROIT, May 6—Commerce Motor Car Co. is entering the market with a 1-ton truck; the chassis will sell for $1340. It is equipped with Bijur starting and lighting and Dixie magneto ignition; the generator and magneto are driven in tandem. There is a choice of three types of bodies; Model EA, open express, to sell at $1375; Model EH, open express with top, at $1450, and Model ES, stake body, which will sell at $1490. Shipments on this new model have started this week.

To Sell Ross Assets

DETROIT, May 2—The entire stock and equipment of the Ross Motor Car Co. will be sold May 14 by B. F. Everitt, receiver in bankruptcy. The inventory value is given as $150,000.



Both sides of the overhead-valve four-cylinder engine in the Traffic truck

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A Drive-Away Accomplishment

Driving Trucks Overland 100 Miles a Day

Two 2-Ton Indianas Driven From Marion, Ind., to Greensboro, N. C., in 8½ Days

EDITOR Motor World: We are enclosing you an account of the splendid performance of our Mr. Moser in driving two 2-ton Indiana trucks from the factory at Marion, Ind., to Greensboro, N. C.—a distance of 873.1 miles—in 8½ days, or an average of more than a hundred miles a day.

According to the reprint which you sent us, it seems that the record of 67 miles a day by the Army trucks was quite a feat, but it is badly outclassed by this performance of the Indianas.—Carolina Motor Co., Statesville, N. C.

On Wednesday, April 10, about 11.30 a.m., Earl Moser and E. L. Beatty, of the Carolina Motor Co., Statesville, N. C., distributers of Indiana trucks in North Carolina, left the factory at Marion, Ind., with one 2-ton dump truck and one 2-ton truck with long chassis.

The necessity for speed was apparent from the fact that the Carolina Motor Co. had guaranteed delivery of the 2-ton dump job at Durham, N. C., on the 19th of April.

The 2-ton long-chassis truck carried about 1500 lb. of miscellaneous accessories, while the dump truck carried no weight except the dump body and hoist.

The first stop was made at Muncie, Ind., a distance of 32 miles. Leaving the main highway at Muncie, the trucks were driven via Blountsville, Losantville, Hagerstown, Richmond to Eaton, where the night was spent. *The first day's drive was 97.4 miles.*

The drivers adopted the precautionary habit of oiling and greasing the trucks and filling up with gas at the end of each day's journey, so that no time would be lost in making early morning starts.

Leaving Eaton at about 7 o'clock in the morning, April 11, they passed Dayton and stopped at Springfield for dinner—a distance of 48.3 miles. Snow was about 6 in. deep from Eaton to Springfield. Leaving Springfield they stopped at Hebron, Ohio, for the night, passing South Charleston, London, Briggsdale and Columbus, driving 72.2 miles in the afternoon, or a total *mileage for the second day of 120.5 miles.*

Starting from Hebron about 7 o'clock on the morning of April 12, the next stop was New Concord, a distance of 55 miles. From this point the consumption of gasoline increased very materially because of bad roads. Between Zanesville and New Concord the highway is plowed up and under construction. Here our trucks passed six Government trucks which had been hung up in the snow and mud for two whole days and were waiting orders from Washington to move as quickly as the roads were passable.

From Zanesville to New Concord the trucks had heavy going. At Cambridge they rested for the night, *with 62.3 miles to their credit for the day.*

At a point about three miles east of Zanesville, in 18 in. of slush and mud, the dump truck skidded, sliding sideways down the hill, and its radiator striking the push pole extending from the rear of the front truck, cutting a hole in the radiator of the dump truck and perforating 21 tubes. The radiator was taken down and each tube plugged with wooden pegs whittled out of white pine, then put back on the truck and finished the entire journey without leaking a drop and without heating as much as it did before. This speaks highly for the accessibility of the Indiana construction and of the ease with which repairs can be made. These repairs consumed four hours. No tools were required other than those furnished with the truck.

Leaving Cambridge, Ohio, on the morning of April 13, they passed through Wheeling, W. Va., on to Washington, Pa., for the night—*making 80.8 miles for the day.*

The gasoline consumption still continued high on account of very bad roads, which were under construction and covered with snow. Between Washington and Morristown, Ohio, the road conditions were very bad—the worst encountered so far on the trip as a whole.

From Washington, Pa., at 6 o'clock, Sunday morning, April 14, the drivers made Uniontown, Pa., for breakfast; dinner was eaten at a roadside farm house, and they drove into Grantville, Md., about 8 o'clock p. m., a distance of 73.2 miles for the day, having been delayed four hours in snowdrifts between Addison and Grantville, where 52 automobiles of different sizes and makes were being towed through by teams.

The snow at this point averaged from 36 in. to 22 ft. where it had drifted, and there was no way around. Here our trucks passed three 3½-ton trucks, which had been stalled for 2 days, their drivers having drained the radiators and left them standing in the middle of the road. Four cars had also been left deserted by their drivers in a neighboring field. After getting through this drift the trucks made the six miles to Grantville in an average of 24 in. of snow. At Grantville 160 cars of different makes had been tied up from Friday until Sunday waiting for passable roads.

Leaving Grantville, Monday, April 15, through Cumberland, Hancock and Williamsport, the trucks made Martinsburg, W. Va., for the night, a distance of 109.5 miles for the day.

The first toll road was reached coming into Williamsport. The State of Virginia has 30 of these supporting institutions.

On Tuesday, April 16, the drivers left Martinsburg at 6 o'clock, breakfasted at Winchester, took dinner at Harrisonburg, Va., and spent the night at Lexington, Va., which they reached at 7.30 p. m., their mileage for the day being 149.7.

From Staunton to Lexington there is a stretch of very bad roads.

Leaving Lexington at 6 o'clock, April 17, Natural Bridge was made before breakfast, over 7 miles of good roads and 7 miles of bad roads. From Natural Bridge over the mountains to Lynchburg heavy grades and very dangerous, narrow roads were encountered. At no point was there more than 2 ft. side clearance on the roads; the curves were very sharp, many bad, weak little bridges, and in some places it was necessary to back in order to turn the curves.

For 18 miles this road was so narrow that it would have been impossible to get by a car if one was met. Lynchburg was reached about 3 o'clock p. m. for dinner, then Alta Vista and Gretna for the night about 9.30, the day's run being 101.1 miles. The road from Lynchburg to Gretna was red gumbo mud, said to be the worst road in the State of Virginia, but now under construction.

Leaving Gretna in the rain the next morning, then to Danville for dinner, the road being in an awful condition, raining hard, and no teams to be seen. From Danville to Reidsville, N. C., and 9 miles south of Reidsville, the roads were still in bad condition. Then on to Greensboro, N. C., over sand clay hard roads, in fair condition, arriving there at 7.30 on the night of April 18, a distance of 78.6 miles for the day.

Total mileage on trip—873.1 miles.
Total running time—8½ days.
Total gallons gasoline long chassis truck—145 gals.
Total gallons gasoline dump truck, 119½ gals.
Average miles per gallon gasoline:
Dump truck—7.3 miles.
Long chassis—6.0 miles.
Oil consumed by dump truck—5 qts.
Oil consumed by long chassis—6 qts.

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OVER THE TOP

What Dealers Did for the Third Liberty Loan

City.	Amount
Albany, N. Y.	$150,000
Austin, Tex.	100,000
Bloomington, Ill.	85,000
Boston	500,000
Buffalo	276,350
Chicago	1,852,600
Columbus, Ohio	110,000
Davenport	100,000
Des Moines	300,000
Galesburg	20,000
Greenwood, R. I.	110,500
Hartford, Conn.	40,000
Memphis, Tenn.	90,000
New York	12,050,000
Pittsburgh, Pa.	250,000
Philadelphia	2,813,350
Phoenix, Ariz.	27,000
Raleigh	12,400
Salt Lake City, Utah	65,000
San Antonio, Tex.	255,000
San Francisco	501,000
Springfield, Ill.	25,000

NEW YORK, May 6—It is still impossible to give any definite figure for the amount of Liberty Bonds of the Third Loan, subscribed for by the motor-car industry. With only a very small percentage of the returns in, the total runs nearly to $20,000,000, but every one knows that the grand total will be far in excess of this. New York City alone subscribed for more than $12,000,000.

The energy and enthusiasm with which the dealer and garage industry plunged into the Third Liberty Loan has been indicative of the spirit which animates this essential industry, which on more than one occasion has been asked to make sacrifices to help win the war.

Almost without exception, dealers placed the resources of their whole organizations at the disposal of the Liberty Loan Committee. In addition to subscribing heavily themselves, many dealers turned over to local committees their places of business and their salesmen. Salesmen were sent out on straight canvass to sell bonds, not cars—and they sold them.

Following are reports from a few of the cities that have compiled their returns to date:

LOUISVILLE

Louisville, May 4.—While the automobile dealers of Louisville did not subscribe collectively to the Third Liberty Loan, the Louisville Automobile Dealers' Association invested $5,000, all of its surplus funds, in previous issues of Liberty Bonds. In Louisville, 60,000 subscribers purchased approximately $13,000,000 worth of Third Liberty Loan Bonds. This city's quota was $7,941,850.

TACOMA

Tacoma, May 6—Twenty-one thousand Tacomans subscribed $3,670,000 to the Third Liberty Loan, this being 39 per cent over quota.

SAN FRANCISCO

San Francisco, May 6—San Francisco oversubscribed its $53,970,000 Liberty Loan by $4,030,000. Of total sum, automobile industry, under leadership of William L. Hughson, president of San Francisco Automobile Trade Association, and Phil T. Prather, president of Automobile Dealers' Association of San Francisco, subscribed $501,000. This was the largest collective subscription from any one line of trade in San Francisco.

SAN ANTONIO

San Antonio, May 6—Members of the San Antonio Automobile Dealers' Trade Association purchased $255,000 worth of Liberty Bonds. Many of the members also did service as bond salesmen among outsiders, with the result that they disposed of more than $25,000 of bonds in this manner.

SALT LAKE CITY

Salt Lake City, May 4—The Allied Automobile Trades of Salt Lake City have subscribed slightly over $65,000 to the Third Liberty Loan. This amount was raised by a committee of local automobile dealers headed by T. W. Naylot, manager of the Studebaker branch. The automobile trade's subscriptions ranked high in comparison with other business interests in the city.

QUINCY

Quincy, Ill., May 5—Motor trades in this city and territory went over the top by 50 per cent over their quota. Over 50,000 subscribed by trade. Big dinner last night to all committees, city and county, to celebrate event. Over $3,000,000 raised here.

PORTLAND

Portland, Ore., May 4—Portland motor car dealers did not work as an organization in Liberty Loan campaign, but their work as individuals was a big factor in putting the city over the top with full quota on April 9, the fourth day after the opening of the campaign. Portland is tied with Toledo as first large city to oversubscribe its quota. During these four days dealers practically called off all other business and turned organizations over to Liberty Loan canvassing.

Special dealers' committee obtained cars from dealers whereby speakers were taken over the city in whirlwind speaking campaign. All dealers subscribed liberally as individuals, and Dealers' Motor Car Association subscribed $1,000. Not content with subscribing its quota so quickly, dealers helped in the wind-up of campaign to oversubscribe it. Result: Portland to-night is 51 per cent oversubscribed, total subscription being $15,296,000, and state 35 per cent oversubscribed.

PHOENIX

Phoenix, Ariz., May 6—The automobile trade of Phoenix is 100 per cent subscribed. Every one of the 490 men engaged bought a bond. Total, $27,000.

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ALBANY

Albany, N. Y., May 6—The Albany motor-car industry helped to put the city a million dollars over the top in the Liberty Bond drive. The trade did not operate in any organized manner, the dealers doing their full share of the work as individuals with business men in other lines. Chauncey P. Hakes, president of the Albany Garage Company, was chairman of one of the merchants' committees, and reported $150,000 in bonds sold.

AUSTIN

Austin, Tex., May 5—Subscriptions of the automobile trade of Austin to the Third Liberty Loan were not separated from others, but it is estimated that the amount of bonds bought by dealers was approximately $100,000.

BOSTON

Boston, May 4—According to George B. Kimball, chairman of the Boston Automobile Dealers' Association Liberty Loan Committee, it is expected that when all the figures are compiled next week it will be found that the trade went over the $500,000 mark this time. This is merely from the dealers in cars, trucks and accessories. The tire pledges were counted in with the rubber trade, and this took a big bunch out of the automobile list. Also, this time, the dealers were limited strictly to their own trade, and had to keep in the city instead of soliciting anywhere and everywhere.

BLOOMINGTON

Bloomington, Ill., May 6—While the Bloomington Automobile Trade Association did not act as an organization in respect to subscriptions for Liberty Bonds, yet all of the twenty members, without exception, subscribed liberally. Joseph E. Lockwood, president of the association, was one of the active members of the Liberty Bond committee for Bloomington. The total subscriptions of the Bloomington motor car and accessory dealers aggregated $8,500. The dealers also subscribed liberally during the previous campaigns.

CHICAGO

Chicago, May 6—The Chicago Automobile Trade Association went over the top with a total subscription of $1,852,600, the quota being $1,800,000. These figures are not complete, as a careful count has not been made. Saturday morning saw the association over $100,000 behind its quota, but by night $149,000 worth of bonds had been sold. Stewart Warner Speedometer Corp. was the largest purchaser, with Nelson & Lemoon second. In all there were 15,242 subscriptions scattered among manufacturers, dealers, employees, etc.

COLUMBUS

Columbus, May 6—Columbus automobile dealers, accessory men, garage men and tire agencies came forward with a zest in their subscriptions toward the Third Liberty Loan. The trade in the Buckeye capital was worked by a team of motor-car men and accessory dealers headed by O. C. Belt of the Belt-Franklin Co. The total of subscriptions reported was slightly in excess of $110,000. Columbus and Franklin County went over their quota with a rush, and honor flags were given to both communities. The quota for Columbus was $6,569,100, and subscriptions late May 4 totaled $7,178,450. Others are to come in to swell the total.

HARTFORD

Hartford, May 6—Hartford has gone over the top in the Third Liberty Loan drive, and so has the state. The city of Hartford this afternoon was reported to have subscribed in excess of $20,000,000. The aggregate subscribed by the dealers, who number thirty-four, is $40,000. The individual scores were high. One representative house subscribed over $5,000, another $3,400, and still another $2,000.

At a meeting of the Hartford Automobile Dealers' Association, held Friday evening, Fred W. Dart moved that the returns from the recent automobile show at the Broad Street Armory, which represented 50 per cent of the cost of the attraction, be used for the purchase of Third Loan Bonds. The show cost the association about $10,000, and $4,800 was put into the bonds. This makes the total automobile showing nearly $45,000.

MEMPHIS

Memphis, May 4—The automobile interests of Memphis subscribed between $85,000 and $90,000 on this Liberty Loan.

PHILADELPHIA

Philadelphia, May 6—This afternoon's revision of the Trade Association loan figures brings the total up to $2,813,500. Team No. 2 gets high honors, oversubscribing its quota five times.

BALTIMORE

Baltimore, May 4—This campaign in Maryland was conducted differently from the previous ones. The automobile dealers of Baltimore were members of the Retail Merchants' Committee of the M. & M. Association, and their work is merged into the other associations. Practically every one of the automobile dealers had their salesforce working at different times during the campaign. William F. Kneip, president of the Dealers' Association, appointed a committee headed by John K. Harper, manager of the Eastwick Motor Co., and Arthur Stanley Zell, president of the Zell Motor Car Co., and these two men worked out a schedule which permitted every dealer to have some of his salesforce at work during the days, and especially in the evenings. The M. & M. has a committee at work now trying to figure out what each of the various trades accomplished in pushing the loan. Baltimore and Maryland overscribed their allotment of $38,000,000, the city going $4,000,000 and the state $3,272,000, over the top, with some places still to be heard from at midnight.

DES MOINES

Des Moines, May 4—$300,000 worth of Liberty Bonds was the record made by the Des Moines motor trades. With the exception of two purchases of $20,000 each by the Standard Oil Co. and the Studebaker Corp., the Des Moines campaign was ended in 5 days. The Motor Trades team worked as one of thirty teams representing all classes of trades and professions under the leadership of the Chamber of Commerce. R. J. Clemens of the Clemens Auto Co., and chairman of the Motor Trades Bureau of the chamber, captained the team. Des Moines' total sales were just under $9,000,000.

DAVENPORT

Davenport, Iowa, May 4—The automobile dealers of the Tri-Cities—Rock Island, Moline and Davenport—went over the top with a wide margin to spare for the Third Liberty Loan. Under the leadership of Commr. V. G. Kropf of the Associated Dealers of the three cities, almost every garage, sales agency and accessory dealer in the territory covered by the association took their full share of the bonds, and their employees followed suit. While no separate record was kept of the motor trades subscriptions, a rough compilation shows the total exceeded $100,000. All the dealers and their employees aided the loan in every way possible, and did their part in helping the district to almost double its quota.

PEORIA

Peoria, May 6—The city and county exceeded Liberty Loan quota by a wide margin, and the motor trades helped greatly to put this result over. No separate canvass was made in the trade, but practically every shop and agency was 100 per cent, and the dealers, under the leadership of President Pinkerton of the Peoria Automobile Trades Association, worked hard to fill their allotment.

GALESBURG

Galesburg, Ill., May 4—This city and county almost doubled their Liberty Loan allotment. The automobile dealers helped a lot toward this happy result, and devoted their time and the use of their cars to various committees to assist in the canvass of the city and the county. Over $20,000 was subscribed by the trade in this territory.

SPRINGFIELD

Springfield, Ill., May 4—With their Liberty Loan quota exceeded by at least 50 per cent, the various committees closed the canvass to-night well satisfied with their efforts in putting the city and county over the top and in line for the honor flags. No separate committee was appointed for the motor trades, but practically every shop and agency bought bonds until it hurt. At least $25,000 was raised among the automobile dealers and their employees.

JACKSONVILLE

Jacksonville, Ill., May 6—No separate canvass was made of the automobile dealers in this territory, but they all worked to help put the loan over in the city and county, and as a result the quota was exceeded by over 50 per cent. Several of the dealers devoted practically all of their time to the loan during the canvass, and results proved their work was appreciated. The motor trades are 100 per cent in this district. At least $15,000 were subscribed through the trade.

OMAHA

Omaha, May 6—The city of Omaha has nearly doubled its Third Loan quota. The last county in the state passed the goal on last day of drive. State total in quota of $31,000,000 is well over $40,000,000. Nebraska claims banner city and county in Union in loan. Hayes County trebled quota. City of Antioch, in potash district, oversubscribed quota nine times. State leads all others in district.

RALEIGH

Raleigh, N. C., May 6—Motor car dealers subscribed to $12,400 Liberty Bonds during campaign, the amount representing 92 subscriptions. The campaign was carried on by the motor division of the city campaign organization. Not only dealers took an active part, but employees of every garage bought at least one bond. Dealers also furnished motor cars during the campaign and boosted bonds with placards and stickers on their cars.

GREENWOOD, R. I.

Greenwood, R. I., May 6—The Rhode Island automobile trade went over the top with the state in the Liberty loan, subscribing to $110,500. Official figures incomplete. H. L. Rice, trade chairman, praises tradesmen's loyalty.

BUFFALO

Buffalo, May 6—The Buffalo automobile trade subscribed $276,350 to the Third Liberty Loan. The quota was $250,000. Charles B. Kane was chairman of the automobile committee.

OKLAHOMA CITY

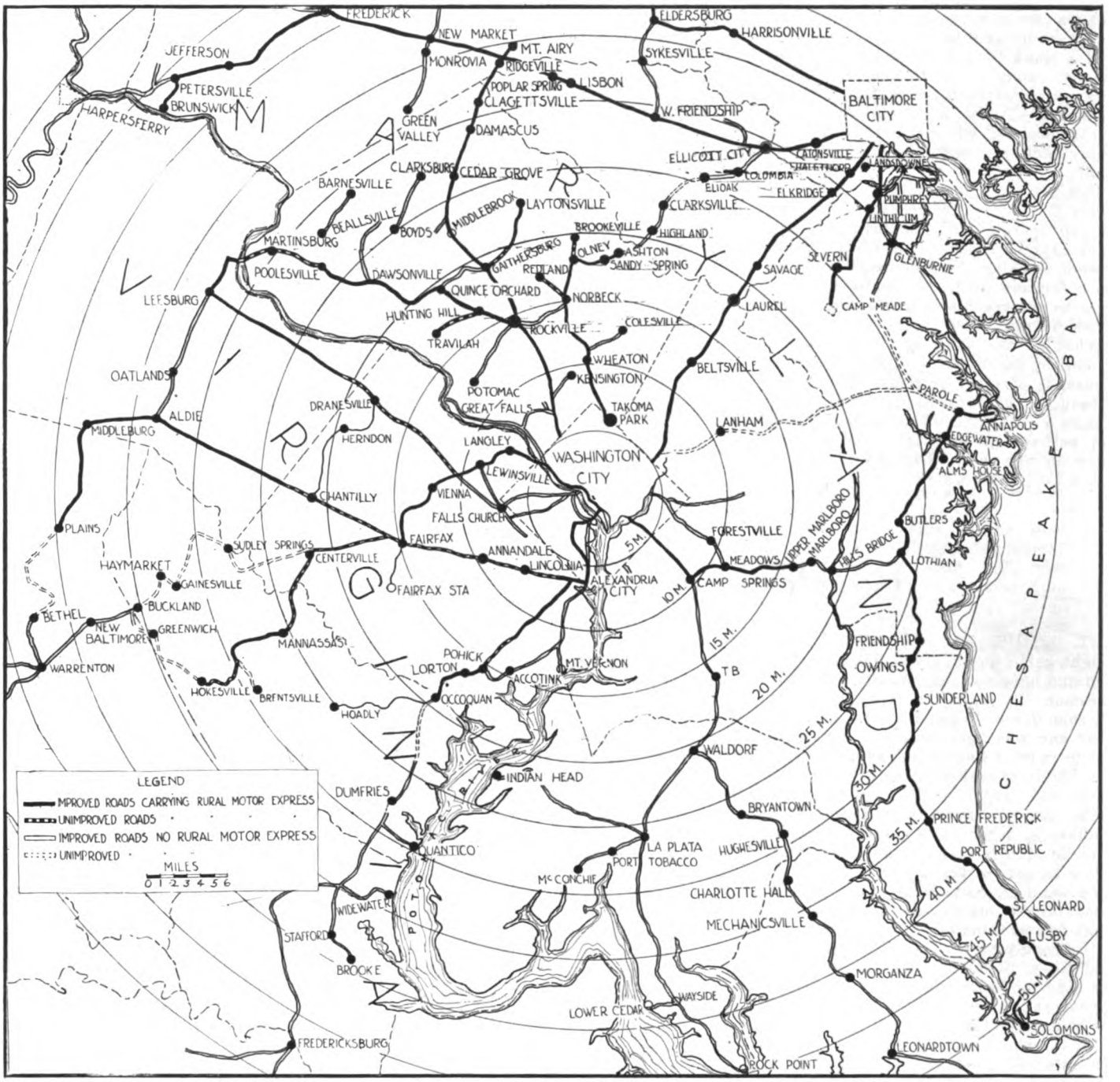
Oklahoma City, May 7.—The automobile men did not work in the Third Liberty Loan campaign as a trade, although every prominent dealer took an active part. W. H. Vesper of the Vesper Auto Co. was one of the four Generals in the Oklahoma City drive and he had under him one-fourth of all the workers.

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Rural Express Routes

Will Help the Dealer

Sell More Trucks



WASHINGTON, May 4—Increased transportation facilities will go far toward assuring a more adequate supply of food. The possibility of obtaining increased transportation is inseparably linked up with the sale of more motor trucks.

These are two facts which assume prominence in the good work that is being done by the Highways Transport Committee of the Council of National Defense, of which Roy Chapin is chairman. At present, and for a long time, the committee has been urgently and persistently advocating the establishment and development of Rural Express Routes and has so far advanced in its plan that a fair network of routes has been laid down in the territory immediately surrounding Washington with the result that a greatly increased quantity of food is coming daily into the National Capital.

The work that has been done by the committee in and around Washington is a fair indication of what can be accomplished in every other section where industrial and commercial interests are centered and surrounded at comparatively short distances by agricultural areas. Such Rural Express Routes put

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the farmer directly in touch with his market, secure an adequate supply of food for cities, and undoubtedly will mean the sale of more motor trucks to farmers.

Take one concrete case as an example. One farmer near Washington discovered 4 years ago that the railroads could not be depended upon to get his milk to town quickly enough; rates were high; cans were lost and injured.

So he bought a truck. He found he could get his milk to town in a fraction of the time required by the railroad; that his cans always came back; and that they were never injured.

In a short time he discovered that he had not enough milk to keep his truck busy. He started to truck milk for his neighbors. To-day he is operating four trucks, each of which makes two trips a day, and his venture shows a good profit.

This man is still a farmer. But he is also a Rural Express operator. He and his son operate both the farm and the rural express route. This farmer is at present trucking the produce of some 14 other farmers along his route. He expects to enlarge his sphere of activities, to add several more trucks.

What has been done by this farmer can be done by thousands of other farmers in thousands of other sections. The wider introduction of Rural Express Routes will require a great deal of educational work, and perhaps no man is better able to carry on this work than the motor car and motor truck dealer.

The dealer is the one to carry to the farmer the gospel of motor trucking. He is the one to spread the facts and figures which will lay before the farmer the undoubted advantage, in these times particularly, when railroads are hard put to it to take care of long hauls let alone short hauls of completely divorcing himself from the railroads—of becoming his own railroad and the railroad for a dozen or more farmers along his route.

The establishment of Rural Express Routes does not require any act of the legislature; it does not require special permits or licenses except in a few cases and these are not difficult to obtain; it requires only the investment of limited capital. It is a business that can be rapidly extended and which properly managed, will return a good profit to anyone who enters it.

The Highways Transport Committee is now actively engaged in spreading Rural Express Routes propaganda. It urges upon others the desirability of spreading such propaganda.

Following is an outline of how the committee investigates the need for the establishment of such routes close by Washington and carries their establishment to conclusion.

In the first place a map is prepared showing all the improved and unimproved roads leading into the city from a radius of about 50 miles around it. This gives the towns and cities and also shows present rural express routes.

One section may have no such route despite the fact that it is in a rich agricultural territory. In this case a letter is sent to every farmer along the proposed route, calling attention to the necessity for the route and giving its advantages. With the letter goes a questionnaire which the farmer is to fill out and return.

The questionnaire asks if a Rural Express Route would help the farmer who is requested to suggest the most suitable route. The farmer is asked the nature of the produce he ships to market and how much. He is asked if he will help put the roads in good condition and maintain them. And last, he is asked to suggest some farmer who would be the logical one to operate such a Rural Express Route.

The replies which the Highways Transport Committee have received have been gratifying. Already, plans are being laid for a great increase in the number of Rural Express Routes and it is confidently expected that a number of additional routes will be in operation very soon.

The time is particularly opportune for dealers to get behind this work. Railroads are unable to handle the great volume of goods that must be transported. Motor trucks are the only solution to the problem.

And the dealer is the best teacher the farmer can have in learning of the advantages of motor truck transportation, or rather of its absolute necessity in these war days.

Be Positive When Selling Cars

ST. LOUIS, MO., May 7—"I have bought half a dozen automobiles for this firm and have not yet met an automobile salesman. I bought the cars; they were not sold to me. When I wanted to know what car was best suited to the job I had in mind, I found out," says the head of a highly organized piano sales organization in St. Louis.

The above remark was repeated to William A. King, sales manager for the Brandle Motors Co., and he was asked: "As a recent recruit from the life insurance business, regarded by many as the most highly organized sales business, what do you think of it?"

"I strongly suspect that he was right," said King. "I have been connected with the automobile business in St. Louis for a year and I have not met many motor car salesmen. They are very scarce.

"It is my opinion that the sales force of the automobile business are not recruited properly. There are three kinds of salesmen:

"*First*, the former mechanic who is made a salesman because he can talk entertainingly and, perhaps, convincingly about the machinery of the car:

"*Second*, chauffeurs who have sold a car or two to persons who have been impressed by their knowledge of the working of the cars and who are ambitious to raise their position in society.

"*Third*, the rich man's son who has seen in the automobile a chance for a nice, easy way to become a business man.

"None of these ways is the proper method to recruit a sales force. If you are going to make a salesman you will have to pick the man you believe can sell an automobile and then teach him about the car he is to sell, and the competitive cars.

"The chief difference between the sales manager's problem in the life insurance business and the automobile business is that in the former he has no class to pick from. In the automobile business, he has pick of the land. In one it is a case of recruiting, in the other a case of weeding out.

"As to selling," continued Mr. King. "I find that the automobile men tell their prospects: 'I think.' Now in the life insurance business, no one '*thinks*' about a fact or what should be a fact. Everyone *knows*. The entire argument is based on completed and proven tables of guaranteed accuracy.

"Here we sell the Chevrolet car. It has one especial competitor. I wanted to know the difference between our car and that particular car. No one could tell me. It was assumed that the other car was run at less per mile than any other car on the market. Many other things were assumed, both about our car and its competitor.

"I don't like things that are assumed. So I started a bit of bookkeeping on my own part and had some of our users keep books too. We availed ourselves of the best records made public about our competitive car. We asked firms that use both cars for their figures.

"As a result I have tables comparing these cars in every sort of use for long and short periods. We now know that our competitor has nothing on us, but we have in fact a serious percentage on him. We have *facts* and we can *show* where we got these facts and they can be quoted to the person who plans to use the car all the time or occasionally.

"*These things are what the motor car business must come to.* The successful salesman of tomorrow is the man who knows, who is a salesman first.

"In the life insurance business, we kept our salesmen on edge by inspiration, but I am inclined to believe that in the motor car business, the salesman must be driven somewhat. The inspiration does not seem to inspire the class of men who place the car before salesmanship.

"What I have said is in all kindness. I am not critical, it is merely facts. It is a new business and the real selling is only beginning. The cars have sold themselves largely."

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Whole Trade Awaits Word From Washington

Production Committee Meeting Discusses Further Restriction in Production of Motor Cars

WASHINGTON, May 7 (Special to Motor World)—The matter of further curtailment of passenger car production was discussed to-day and left in the hands of a committee of eight men to be taken up again to-morrow. This committee includes, representing the War Industries Board, C. A. Replogle, Hugh Frayne, Geo. N. Peek and Mr. Legg; representing the automobile industry, W. C. Durant, John N. Willys, Walter E. Flanders and John Dodge.

F. W. A. Vesper of St. Louis, representing the National Automobile Dealers' Association, is at the meeting and is optimistic of results. He does not believe that matters are as bad as some believe. He urges that dealers not be unduly apprehensive, and adds, in case of a severe cut: "Diagnose your business; if you can't do it, get some one who can; eliminate all waste and reduce overhead; take on truck and tractor lines and make up in some other way for the loss of passenger car business."

WASHINGTON, May 7—The Automobile Production Committee of the National Automobile Chamber of Commerce which early in March met with the War Industries Board, at which time a curtailment in motor car production by 30 per cent was mutually agreed upon, is meeting again to-day. The meeting has been called to discuss a further proposed curtailment, to take effect after July 31, which is the date when the old agreement expires.

At the present moment it is not known what the War Industries Board will suggest in the way of a further cut. Nothing concerning the probable result of the deliberations has been permitted to become public though rumors are flying thick and fast.

One of these rumors has it that a cut of 50 per cent will be made; that is, an addition of 20 per cent to the present existing schedule. Another, that a reduction of 66 2/3 per cent will be made, and that the basis for calculating the reduction will be an average of the three years' production commencing July, 1915, and ending July, 1918.

It is practically certain that a further cut will be ordered. Increasing quantities of raw materials are required for war work, and among these steel takes an important place.

Last week the leading steel makers of the country met in New York and unequivocally pledged themselves to give their entire outputs to government and war needs for the next 60 days. Not a pound of steel not intended for actual war needs is to be delivered. The meeting was history-making in its importance. Here were representatives of 45 of the greatest steel concerns in the world voting without restraint to devote their entire energies to a program that will help win the war. Here is the pledge they signed:

"For myself, my corporation or any firm, I pledge the prompt production and delivery of the largest possible quantity of material in our departments that is, or shall be, required for the United States Government for the necessities of itself and its allies, and agree that all other lines of our business shall be subordinated to this pledge, and all this in accordance with the request of the War Industries Board."

In offering the pledge to the steel makers, Leonard Replogle, director of steel supply of the War Industries Board, stated frankly that he came from the President clothed with power "to go practically to the English system of an absolute prohibition on the consumption of any iron or the manufacture of any steel except for absolute war necessity."

Serious Cut Would Be Disastrous

NEW YORK, May 6—If serious cuts are made in the production of motor cars it will have a disastrous effect on the businesses of a great many of the dealers in this section, and this section, state those familiar with national conditions, is not unlike the rest of the country.

Factory branches, if the factories so desire, can be continued even at a loss, because most of the factories are operating at a profit through war contract work—but branches are comparatively few. These branches can also cut down their own retail sales and pass along a larger percentage of their quotas to the dealers, but even this will leave the dealers short.

Production is now from 30 to 50 per cent off along the row. This means that some dealers have made no money for weeks. Some are just about breaking even. Others are showing small margin of profit through parts and service.

One dealer is planning to open a used-car business and hang on indefinitely if possible. Several state that, while they haven't thought that far yet, they would undoubtedly have to go out of business if there is a further cut. One such dealer says his rent is $30,000 a year and his overhead $100,000, and he has the latter figure down as low as it can be cut. He says if there is any further curtailment he will have to go out of business.

It is agreed that thousands of dealers throughout the country sections would be wiped out if there is any further great curtailment. A few could continue on their parts and service work, with accessories, tractors, etc., but the mental change that would be necessary would be too great for some, and they would lose nerve and fall out.

One distributer says he advises all dealers to hang on as long as they can in order that they may not lose the good-will that attaches to a going business, for, he states, starting anew at a later date will be hard and possibly more costly than keeping going in the face of a cut on production.

One branch manager of a big production car states that he could continue the branch with a cut of 50 per cent, but that his 100 dealers could not exist below a cut of 33 1/3 per cent. At that margin he says they would be on the profit-and-loss line and would be forced out of business if the cut were greater.

Dealers generally recognize that the possibility of being forced out of business is something that is to-day more than mere talk. It has been talked of for a long time, but the bare facts are to-day at hand, and thousands realize that much more shaving of the industry will cut off the roots upon which it must subsist after the war, and also part of the roots that are sustaining thousands of cities, villages and hamlets all over the country.

Omaha, May 4—Considerable skepticism prevails among Omaha men as to probability of cut in automobile production going into effect as forecast.

J. T. Stewart Motor Co.—Pierce-Arrow and Mitchell—Propose to protect our dealers to limit. Had plenty hard luck already getting

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cars for demand; can't imagine much worse. Shall proceed along customary lines until forced to other measures, then may consider cutting some wholesale connections and taking over retail end in state trade, but this only as last resort.

W. L. Huffman Auto Co.—Premier Columbia, Nelson—All serene. Have bought and paid for enough cars already manufactured to last us through entire year. Will make even more money if competition is eliminated this way. Will not cut any connections. Have good lines of trucks, tractors and accessories to help if needed, but see no danger. Will do bigger business than ever.

Murphy-O'Brien Auto Co.—Dodge and Paige—Do not believe it. Factory advises nothing. Thirty per cent cut already in effect has been sad blow. Had to cut similar proportion of wholesale connections and assume retail trade in territory. Further reduction would mean further similar cut, with more territory to cover. This means fifty-fifty basis, or more profit to us, so we protect ourselves. Ample finances. Can stick. Have trucks, tractors and accessories to help. Cut in production would mean freeze out for lots of little fellows.

Nebraska Buick Co.—Buick—Can't be much worse than it is. Lots of trouble; long time to get even small percentage of cars for demand. Plenty of capital. Can stick. Don't like to consider dropping dealers and taking their trade, but may have to.

H. Pelton—Marmon and Franklin—Do not believe it. No great trouble to get cars to date for delivery. Sold 30 days ahead. This is just fair situation. Have cut no connections, and not thinking of it. Will cross that bridge when we come to it. Don't see any bridge. Not worrying.

Studebaker-Wilson Co., Inc.—Studebaker—Await outcome of meeting of automobile men and government representative now on in Washington. Some doubt as to what 75 per cent means, whether this proportion of what factory might put out at capacity in normal times, or of present rate, or what was done last year. If 75 per cent of all possible in normal times, remainder would be yearly total last year's factory output. Factory advises it can make 35,000 cars and fill all government requirements. Made 53,000 last year. Can get along if 35,000 are put out and we get our share. In any case, we propose to protect our exclusive dealers to the limit. Plenty of capital.

Kansas City, May 6.—Many dealers are depending heavily on truck and attachment business to make up deficiencies in passenger-car supply; 20 per cent of dealers without truck accounts will probably close if cut is 50 per cent. Those having used cars separate with exclusive lines will keep such open. Large city dealers with several lines expect advantage over small country dealers. Dealers await Washington action.

Minneapolis, May 6.—Dealers are handling the situation optimistically, and day by day in instances reductions have been made in selling forces, readjustment of allotments, and addition of truck and tractor lines to help out.

Willys-Overland has made big reduction in space used, called off all wholesale traveling men, and readjusted allotment of cheap cars. Hence this automobile company will do anything to help win the war, and has made no cuts in overhead or dealers, but considers one-third cut already is in effect.

Midland Motors Co. says that to continue in business, making money, it will have to have at least 50 per cent of factory production for this year's schedule. With fewer cars than that will have to cut organization and let out many men to curtail expenses.

Bohn Fawkes, Oldsmobile, can do business at 50 per cent cut. Already has cut representation one-third and will have to cut more.

Northwestern Automobile Co. reports up to May 1 running 60 per cent of last year, and at end of fiscal year, July 30, will not be over 50 per cent of last year. Has curtailed advertising and road expenses for salesmen, taking only tractor and truck lines. Does not expect further curtailment.

Murphy Automobile Co. believes if any more curtailment is necessary than already has been made it will have to go out of business.

Baltimore, May 6—While a strong, optimistic spirit pervades the large motor dealers, there is a feeling among many of the smaller and less substantial dealers that a reduction of passenger-car output from 50 to 75 per cent is going to work havoc with the trade. All of the dealers expect to see higher prices for motor cars with a reduction of the output, while most of them rely on the truck business and other accessory business to carry them along. Practically all of the larger dealers have been getting their stock in away ahead of their orders, and will not be materially affected by this year's reduction; but there are many who have not been able to get the stock ahead. Even those who have stocked up for this year's trading are more or less anxious over what effect the curtailment order is going to have on their business next year.

F. S. Bliven, manager of the Standard Motor Co., Cadillac, Knox Traction Unit, Lally Light, and a truck distributer, says it is almost impossible at this time to forecast what effect the order is going to have on business. "We have never been busier," said Bliven, "than we are at this time. If this order of curtailment means the motor industry as a whole, it will have quite a different effect than if it is going to be applied to each individual company. Many of the small companies have already closed down, and some are on the brink of doing so. If the order is going to take the industry as a whole, then the closing down of the small companies will permit the larger ones to make the most of their output and make it possible for the dealers with the high-class representation to continue in business.

Earle Williams, general manager of the Packard Motor Co., Baltimore, says: "The price of cars will naturally take a big jump, but we are prepared to place our reliance in trucks. Used cars and accessories, for we have large departments for both, will also help to carry along our overhead unless production becomes normal."

W. D. Howell of the Howell Motor Co., Reo, Day-Elder truck and Duplex Four-Wheel Drive distributer, says: "The reduction of the output is going to bring about a healthy buying public with cars at higher prices. There is no doubt in my mind but that the manufacturers have anticipated such a possible situation, and have been manufacturing parts to such an extent that they will be able to get out most of their production. I will have 75 per cent of my allotment here by June 1. Another point—I am prepared to handle the mechanical end of the business very well, because we have large machine shops, and about 10 per cent of the Baltimore dealers will also be able to come through by this means. Trucks are going to help us along, and our accessory department is also going to help us to take care of the overhead."

Harry A. Mayer, general manager of the United Auto Sales Co., Studebaker and Garford distributer, says: "Business was never better with us than it is at the present time. We have not been able to get in our passenger cars fast enough, and have sold ahead all we will be able to drive in and obtain by railroad within the next 30 days.

"The truck business is going to help out, but we need both to make business pay as it ought to. It is costing a great deal more to do business to-day than ever before. I feel safe in saying that many of the Baltimore dealers who have not a truck account will be forced to close down."

James J. Flynn, manager of the Baltimore branch of the Chevrolet Motor Co., Inc., of New York, says: "I'm optimistic, and feel that the Chevrolet company is going to see that we get either passenger cars or some side line to keep this business going. We have too many cars on the streets of Baltimore and in the state for us to close down. I would like to be sure that we will be able to continue to get sufficient cars to keep running at a profit, so as to give service to our owners."

Most of the dealers declined to express any opinion on the subject, in view of the matter not having reached a definite end as yet, but should the cut be made to 75 per cent there is going to be a doubling up of many passenger-car agencies under one head, for it will be impossible, from the information gleaned for dealers, to continue as at present and make a profit.

Boston, May 6—The Boston automobile dealers are still at sea over the proposed curtailment of motor cars, and they have not yet made any effort either as individuals or as a body to plan just how to meet the shortage of cars for next year, other than to decide that now is a good time to take on trucks.

Since the Boston show there has been a great rush to add commercial vehicles to the various lines, not only in Boston but all through New England. Companies that have never given a thought to commercial lines before, and were not expected to bother with them, now sell trucks.

In some instances, where sales forces have been depleted by war drafts, the dealers, realizing the unsettled conditions, have not made any attempt to secure additional men, and are going along on a war basis. But there has been no attempt to seek smaller quarters or to cut overhead expenses yet, although that may come later.

St. Louis, May 5—The motor trade here was not inclined to be enthusiastic when the plan of organizing business as a whole, instead of by trades, was announced for the selling of the Third Liberty Loan. But when St. Louis, on Thursday, was the first of the cities rated at more than 500,000 to go "over the top," any criticism was disarmed. The St. Louis district had previously been the first district to go "over the top" as a whole. So impersonal has this organization been that even motor-car men who have been giving most of their time to Third Liberty Loan work are unable to see a basis for estimating the amount the trade here has taken.

Milwaukee, May 7—While definite expressions are withheld pending further information, leading dealers believe proposed radical curtailment of passenger-car production means ruination of the dealer industry, already hard hit by previous cut. Overhead generally is too large to stand up under radical curtailment. Dealers handling trucks are not so much worried, unless truck output also is cut. Some dealers have extensive outside interests to keep them afloat; others consider the future situation precarious.

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First Report of Fordson Tractors in Operation

Has Ample Power, Is Easy to Operate and Is Giving Little Trouble

LANSING, MICH., May 6—Good reports are coming from many quarters of Michigan on the work of the 554 Fordson tractors distributed through the War Preparedness Board, as the majority of these tractors are in operation. The tractor is doing good work and has ample power. It is easy to operate and is giving little if any trouble. Its speed is a factor that is being appreciated.

None of these tractors has been running long enough to show wear or breakage. No conclusion can be reached as to the life of the machine. The consumption of kerosene is running a little over 2 gal. to the acre in parts of the state visited. Many farmers are not keeping sufficiently accurate records to give more than general statements.

On one farm a Fordson was plowing on rather heavy clay soil. The land is rolling, some of the grades being quite steep. With the plows set so that they were cutting nearer 16 in. than 14 in. of furrows width and with the ground plentifully sprinkled with tough alfalfa roots, the tractor moved at its regular speed except on the steeper grades. The furrows were 7 to 8 in. deep and the work good enough to satisfy anybody.

Pro-German Emery in Bearings

In some parts of the state troubles pointing to pro-German activities have been encountered. A number of the tractors did not work properly and an examination showed that oil tubes had been stopped with drops of solder. It is said that these tubes are not made in the Ford factory and no one knows where the solder could have been put in them. A member of the War Preparedness Board has declared that some of this has been traced to spies working in factories.

A further indication of pro-German activities is that emery has been found in some of the bearings. A Motor World representative in his investigation of the work of these tractors saw examples of this emery a few days ago.

Tractor To Cost $800

There is much discussion as to what methods Henry Ford will use in merchandising this tractor. It is reported he expects to fill the quota of 1000 through the regular agencies. These agents pay him $750 f.o.b. Detroit for the tractors, which is the same price that the farmers have paid the War Preparedness Board. These dealers are instructed to sell the tractors at $800, which price includes service on the tractors, which have already been sold.

The merchandising of the plows to go with the tractor is not so definite. They will sell for $180. It is believed the agency for the Oliver plow, which is being used, will be given to Ford agents, although this has not been definitely announced.

One matter in connection with tractors has been well demonstrated, and that is the necessity for accessibility. Where a bearing has to be taken up, such as on the crankshaft, the work has to be done on the field, and the greater the accessibility the shorter the time required for the job.

Accessibility Is Important

In taking up one of the bearings which had been damaged by emery the status of the Fordson in this matter came in for attention. To remove the bottom of the crankcase it is necessary first to drain the crankcase of oil and also the cooling system of water. The triangular brace connecting the crankcase with the front axle has to be removed. It is necessary to disconnect one end of the steering rod before the loosened crankcase can be removed. This bottom is held by thirty bolts, all of which must be taken out. As all of this work must be done in the field, the job becomes naturally more difficult than if it could be done in a garage or factory.

One or two dealers in Michigan have already decided upon a service policy, which includes preparation for speedy repairs on any tractor within a distance of 30 miles of the agency. Such service would apparently include bearing trouble such as the case above cited, which was due to the emery. Where service must be given, it is important to do the work as speedily as possible. The job of repairing a bearing is one that cannot be done by many farmers, and dealers must be prepared to give adequate service until such time as the farmers are better prepared to handle these difficult jobs.

Start Fordson Distribution

DEARBORN, MICH., May 6—The placing of the Fordson tractor on the general market was started this week. Local agencies must keep a supply of parts and accessories for the tractor, and the service system is a duplicate of the Ford service system. In order to educate prospective dealers and others who will handle the tractor, the agents are sending young men to the Fordson plant, where they are being taught assembling from start to finish, so that they will be thoroughly familiar with the construction of the Fordson tractor.

States Order 800 More Fordson Tractors

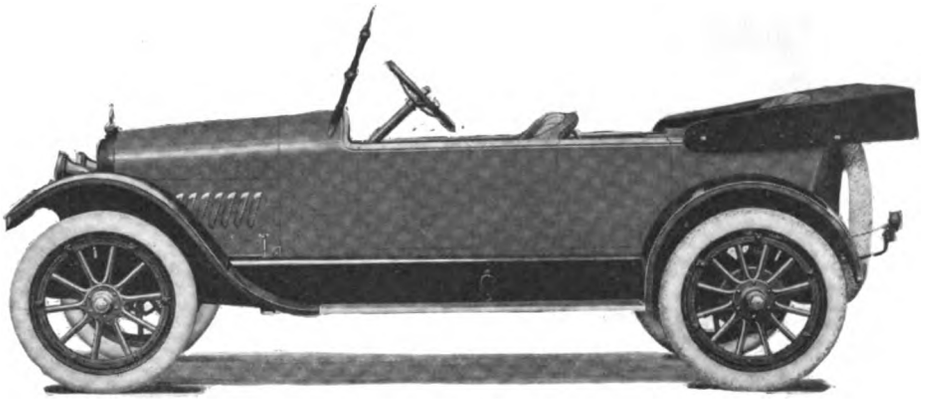
DEARBORN, MICH., May 3—Three more states have ordered tractors from Henry Ford & Son. Wisconsin placed an order for 500; Virginia for 200, and Tennessee for 100. The two latter states will handle distribution through a recognized distributing agency. The order to Wisconsin will go to only a few counties and will be distributed through T. W. Meiklejohn, a distributer, who will co-operate with the County Council of Defense.

Harroun Producing 20-30 a Day

WAYNE, MICH., May 6—Business of the Harroun Motors Corp. is steadily increasing and amounts to a production of from twenty to thirty cars daily. The May schedule calls for 500 cars and indications are that this figure will be exceeded. The company plans to produce 600 cars in June. Approximately 500 men are now employed and it is expected that this figure will be doubled within the next 30 days to take care of the 155 m.m. shell contract received from the government.

2000 Chandlers in 3 Months

CLEVELAND, May 6—The Chandler Motor Car Co. produced 2000 passenger cars the first 3 months of 1918, as compared to 4400 during the corresponding period last year.



The Elgin Motor Car Corp., Chicago, is building a new 4-passenger model which will be known as Military Scout. While it is a 4-passenger car, it will comfortably carry five people. The body of this Military Scout model is of distinctive design of straight-line type, beveled edge and full size rear fenders. The price is $1,195

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Wage Competition Is Causing Shortage of Skilled Mechanics

Big Money Paid by War Industries Lures Men from Garages and Service Stations

NEW YORK, May 4—An investigation of the shortage of labor in service stations discloses the fact that this shortage is occasioned not alone by men taken for military service by draft or enlistment, but to a still greater extent by the wage competition of munition plants, shipyards and airplane factories. As most of these are turning out work for the Government on a cost plus basis, the item of labor cost does not bother them much, and they can afford to pay almost any price as long as they get the men. The service station stands in no such position as regards its ability and willingness to pay excessive prices for skilled labor, and unless the station can meet the price the men seek more lucrative positions.

The service stations have adopted various means of combating this loss of their employees. The market for skilled labor of the particular type demanded is not very large, and some stations have been training green men or taking mechanics of not more than medium ability and teaching them the fine points.

This, however, only stays the trouble for a short time, for as soon as the men learn something they follow in the footsteps of their predecessors.

A more satisfactory answer to the question is to increase the efficiency of the men that remain. The Packard company, which lost 31 men in the first draft, and more in other ways, co-operating with Packard stations all over the country, found that its efficiency was about 94 per cent. This figure was arrived at by a scheme of averaging up the other stations. Some of them were quite low.

By installing additional machinery and adopting a bonus system, the efficiency of the New York station was raised in a short time to 167 per cent. The bonus system consisted in adding $10 per month to each man's wages, with a certain amount deducted for every complaint that came in from a customer on the particular work done by that man. Inducements were offered for devices to shorten time on jobs, and the men showed considerable ingenuity in this sort of work.

So far, the use of girls in service stations has not been advocated. F. R. Bump, manager of the Studebaker branch, however, thinks that the time is not far off when he will have to use girls in the stock room and for various positions in the office hitherto held by men. He is of the opinion that it is no harder to teach girls the work than it is men.

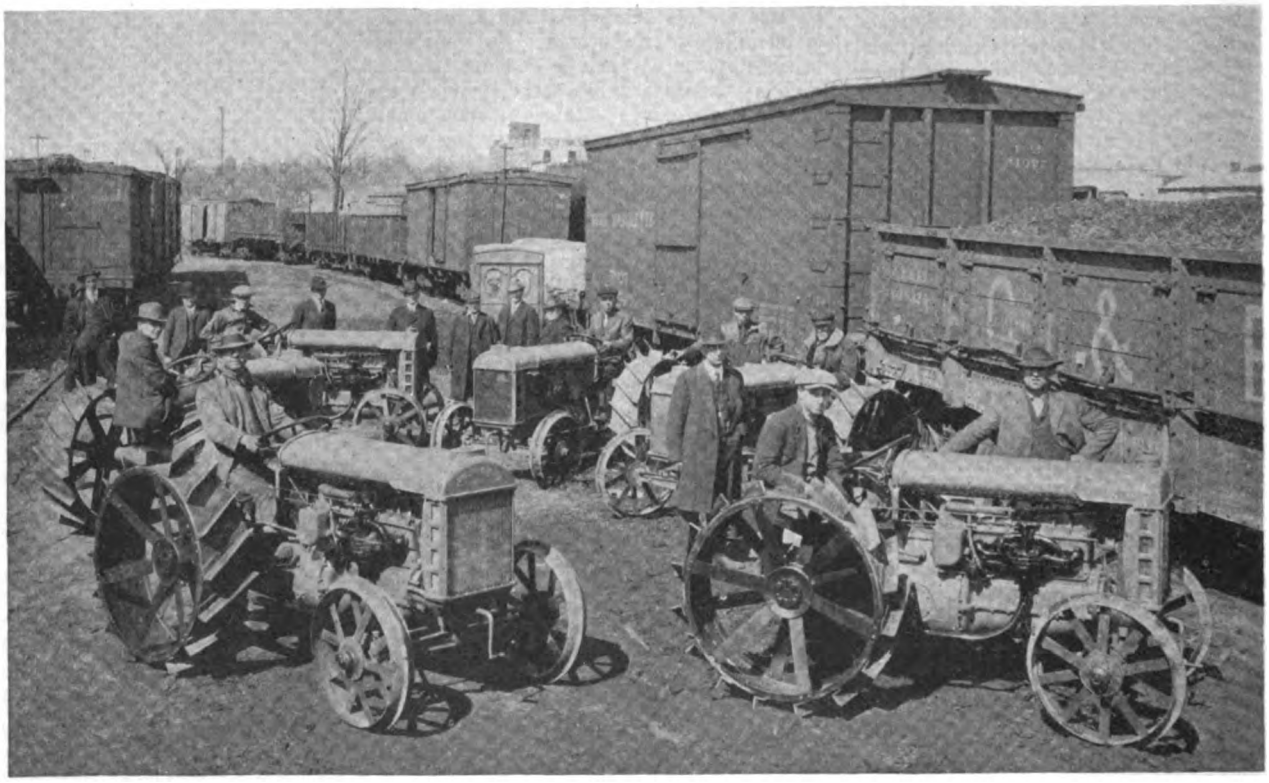
Girls are being largely used in England and France in shops, but it hardly seems possible that they can do the class of work done by the service station men in this country. They may be all right on automatic machine work, and on lathe jobs, but service station work requires an inherent mechanical skill which is possessed by but few of the weaker sex.

In spite of the fact that the cost of labor to the station has soared to unheard of heights, in most cases the cost to the customer remains the same. Some few of the stations that previously had made a very small charge on the labor items were forced to come up to the general level of $1 per hour.

It is quite generally agreed that the price will soon have to be raised, but to what figure is a point not yet decided on. J. B. Hulett, president and treasurer of the Brady-Murray Motor Corp., handling the Chandler, is of the opinion that a charge of $1.25 for ordinary mechanical work and $1.50 for highly specialized work would be a fair figure and one on which the station would not show a loss.

There are no exact figures available as to the cost of labor to the station. Hulett says that two years ago, when the price to the customer was the same as it is now, the cost to the station was 82 cents. At the present time he estimates that the cost is fully equal to the price he gets if not more.

While the shortage and high cost of labor and other things have been a thorn in the side of the service station, it has created a spirit of efficiency that has resulted in getting out more work with a smaller force. Devices and machines have been bought or made to make possible certain jobs being done by one man instead of two or three. Where formerly the lifting of a truck body took several men a couple of hours in the Packard station, a winch is now used which enables one man to do the job in a half hour.



ARRIVAL of the first carload of Fordson tractors ordered by the State of Michigan and delivered April 5. The price of the tractor has been definitely set at $800 and the plow will probably be $140. Nebraska, South Dakota and Indiana have each placed orders for 500 tractors this week

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Cut Rubber Imports; Set 9 Sizes for Tires

War Trade Board Curtails Imports 37½%—Eliminates 200 Pneumatic Sizes

NEW YORK, May 6—The establishment of nine standard sizes of pneumatic tires and the restriction of rubber imports from overseas points by 37½ per cent are two measures which have been taken by the Government as a means to help in winning the war.

The War Service Committee of the Rubber Industry of the U. S. A. has sent a letter to automobile manufacturers urging that they use nine standard sizes of pneumatic tires for passenger cars and commercial vehicles up to 2 tons, commencing July 1, 1918. It is believed that this schedule will be adopted by both tire manufacturers and automobile manufacturers, resulting in the ultimate elimination of some 191 different sizes and types of tires which the manufacturers must now produce and the dealer carry in stock.

The sizes which the War Service Committee includes in its schedule are as follows:

Size	Rim	Size	Rim
30x3½, clincher	30x3½	34x4½, S.S.	34x4½
31x4, clincher	30x3½	35x5, S.S.	35x5
32x3½, S.S.	32x3½	36x6, S.S.	36x6
33x4, S.S.	33x4	38x7, S.S.	38x7
		40x8, S.S.	40x8

All these sizes, with the exception of the 36 x 6, 58 x 7 and 40 x 8, conform to the Society of Automotive Engineers' Standards, which were adopted in July, 1915. One entirely new size, 33 x 4, has been adopted as a regular standard size, and is intended as a compromise between the 32 x 4 and the 34 x 4. It is pointed out by the War Service Committee that the adoption of this schedule of sizes by the automobile industry will greatly reduce the amount of stock a dealer must carry and correspondingly increase the service which he can give car owners. At present there are approximately 200 sizes in types of tires made in inch sizes as against the nine sizes in the new schedule.

The War Service Committee also urges the earnest support of automobile manufacturers in the program looking to the standardization of American inch sizes on all export shipments of cars, which will eliminate the necessity for manufacturing and carrying in stock, both in this country and in foreign branches, 43 sizes and types of millimeter clincher tires.

The committee urges that, except in the two smaller sizes, only straight-side shoes be manufactured, thus eliminating clincher, which is used now only in a very small number of cases, Q.D. and straight side Q.D., in which the beads are reversible.

Both this measure and the decision to restrict rubber imports by 37½ per cent have been adopted as a means to release ship tonnage for other purposes more intimately connected with winning the war. Commencing about May 1 the War Trade Board will refuse to issue licenses for the importation of rubber from overseas points for a total amount in excess of 25,000 tons. Based on receipts during the past three months, this represents a restriction of about 37½ per cent.

The immediate effect on the tire industry will not be great. In fact, it is understood that tire manufacturers have sufficient rubber on hand at the present time to permit them to manufacture at practically normal capacity during this three-month period, allowing, of course, for a certain reduction in production to correspond to the reduced production of cars and trucks.

Following the decision to restrict imports, the War Trade Board has let it be known in a manner unmistakable that the Government will not permit hoarding of rubber or profiteering in it. It has issued regulations requiring everyone receiving rubber to sign an agreement giving the Government an option on the entire shipment at 62 cents per pound for standard quality smoked sheets, 63 cents for latex crepe and 68 cents for fine Para. Under the terms of the agreement the person receiving the rubber is not permitted to sell or transfer any of it at a price higher than is set by the Government.

More Money for Farmers

WASHINGTON, May 6—A possible 650,000,000 bushels, the greatest winter wheat crop since the record breaking yield of 1915, together with a probable increase of 15 per cent in the acreage of spring wheat—that is the forecast made in a report on the condition of winter wheat issued to-day by the Chamber of Commerce of the United States through its Committee on Statistics and Standards.

"The present acreage now standing in winter wheat," says the report, "is 20 per cent greater than the acreage at the same time in 1917. But the greatest promise of a high yield of winter wheat is found in the general high condition of the wheat, a condition which has improved steadily since the first of April.

"Estimates of coming yields are always uncertain because of the possible vicissitudes of weather and depredations of insect enemies. But the crop has come through the trying month of March with a higher condition than it entered it, and with moderately favorable weather from now on there is promised a production of at least 600,000,000 bushels. It may go as high as 650,000,000 bushels if all goes well."

St. Louis Association To Help Win the War

Members Individually and Collectively Will Assist in Knifing the Kaiser

ST. LOUIS, May 6—Joseph A. Schlecht, re-elected president of the Automobile Manufacturers' and Dealers' Association, is planning that his administration this year shall do all in its power to aid the government plans, whatever they may be.

"I am not expecting to do anything radical in the way of extending business," said Schlecht, "but I am hoping that we shall bring about many conservations of our material, labor and time. We hope to keep the trade in St. Louis in such shape that it will be in conformity with any orders the Government may at any time issue. We are on a platform of 'Win the war, never mind the cost to us.'

"Our first step will be to conserve labor in repairs. We are making plans for one general repair firm to take over all of the night work. We want this firm to have a downtown, west end, south side and north side station for night and Sunday work, then all members of the association will close their repair shops at night and on Sundays. This will mean a considerable conservation.

"The Junior Officers bureau will be a conservation plan. This will include accountants, service managers, etc. We think that when these men get together then can work out standardizations that will help us all. One of the first questions is that of insurance. At present, hardly any two motor car dealers are insured on exactly the same terms.

"These are a few of the things that we are working on. In the appointment of the committees, I have kept the chairmen within the Board of Directors, so that one meeting will serve. I have put each man on the question which appeals most to him and will permit each chairman to name his committee. We hope in this way to get better service from them."

Smith Signal To Weiss & Sinclair

NEW YORK, May 4—Beginning May 1, 1918, the firm of Weiss & Sinclair took over the United States distribution of the Smith auto signal. The company is at 42 West 39th Street, but expects in the near future to move to the plant of the Smith Signal Corp., 53-55 West 66th Street. On and after May 15 price of the Smith auto signal will be $20.

One Harley Motorcycle Van

MILWAUKEE, WIS., May 4—The Harley-Davidson Motor Co., which in the past has made several commercial motorcycle models, including a 600-lb. side van and a 400-lb. three-tracker truck, has decided to concentrate in the future on a 400-lb. side van. The motorcycle part will be identical with the Harley-Davidson solo motorcycle except that the engine compression will be a little lower.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

V. M. Brady, for 6 years manager of the St. Louis branch for the Pest-O-Lite Co., has taken over that business as distributer for Prest-O-Lite products. The warerooms are at 2700 Locust Street.

C. N. Tucker, formerly service manager for the De Luxe Automobile Co., St. Louis, now a sergeant in the 222nd Aero Squadron, U. S. A., cables his safe arrival in France.

H. Jay, manager of the Philadelphia branch of the Bearings Service Co., since last November, has left for Camp Sherman, Chillicothe, O. His successor is **L. H. Ward.**

M. J. Wise, former district sales manager of the Federal Motor Truck Co., Detroit, in the middle west, has been appointed district sales manager for the Acason Motor Truck Co. for the same territory.

J. V. Thomas has been promoted from assistant sales manager to general sales manager o fthe B. F. Stearns Co., Cleveland. He was associated with the Moon Motor Co., of which he had charge of general sales prior to joining the Stearns company.

R. B. Campbell, branch manager of the Bearings Service Co., Detroit, formerly located at Atlanta, Ga., has been transferred to the Detroit Branch.

C. M. Garrett, purchasing agent of the Midland Motor Car & Truck Co., Oklahoma City, has opened an office in Detroit.

Frederick B. Bartnitz has joined the truck sales department of the Foss-Hughes Co., Philadelphia distributer of Pierce-Arrow cars and trucks. For the past 15 years, he was division passenger agent of the Pennsylvania Railroad.

C. O. Olson, for two years auditor for Warner M. Bateman, Cleveland Maxwell distributer, has been made manager of the Youngstown branch.

F. Winsor Eveland, a pioneer in the Philadelphia automobile trade, having started in 1906 as the Stevens-Duryea agent, has been appointed sales manager of the Girard Automobile Co., which distributes Peerless cars and trucks.

F. E. Hurst, for the last year and a half assistant factory manager for the Chevrolet Motor Co., Flint, has resigned to become associated with H. L. Innes, former factory manager for the Chevrolet, and now vice-president and general manager of the Doble-Detroit Steam Motors Co., Detroit. Prior to coming to Flint, Hurst was with the Dodge Brothers for 2 years, and also with the Hupp Motor and Grabowsky Power Wagon companies.

J. Walter Drake, president of the Hupp Motor Car Co., has been elected vice-president of the Wayne County War Preparedness Board. A permanent office will be established at the Board of Commerce, with a secretary in charge.

Charles G. Frowart, for several years connected with the Pennsylvania Railroad, has been appointed manager of the McNaull Tire Sales Co. of Pennsylvania, with Philadelphia distributing offices at 809 North Broad Street.

H. W. Badenhousen, who for the past year was general manager of the Warnola Mfg. Co., New York, has joined the New Era Spring & Specialty Co., Grand Rapids, in a similar capacity and as treasurer of the company.

R. W. Leach, Cleveland, O., has been appointed sales manager of the Curtis Auto Co., Milwaukee, distributer of the Reo in Wisconsin. Leach succeeds Alton J. March, who resigned April 1.

Robert H. Thieman, secretary-Treasurer of the Raab-Thieman Co., Ford dealer, and manager of the Sheboygan Auto & Supply Co., Sheboygan, Wis., has enlisted in the ordnance corps of the national army and left May 1 for Jefferson Barracks. Ultimately he will be assigned to the ordnance supply school at Camp Hancock, Augusta, Ga. He retains his interest in the Sheboygan concern, which will be continued by Arthur F. Raab.

C. A. Miller, assistant general sales manager of the Republic Motor Truck Co., Alma, Mich., has succeeded M. E. Holmes as general sales manager.

J. D. Wilson has been appointed chief engineer of the carriage division of the Packard Motor Car Co., succeeding G. H. Bridie, recently transferred to the aircraft engineering staff. He was formerly assistant carriage chassis engineer.

L. W. Coppock has resigned as chief engineer of the Higrade Motors Co., Harbor Springs, Mich.

Marwin Truck Gets Plant

KENOSHA, May 6—The Marwin Motor Truck Co., Chicago, which recently was organized under the laws of Delaware with a capital stock of $1,000,000 to manufacture motor trucks and tractors, has purchased the former plant of the Skidd Mfg. Co. at Kenosha, Wis., and will make that city its manufacturing headquarters.

Weld Coast Overland Companies

TOLEDO, May 2—Two subsidiary companies of the Willys-Overland Co. on the Pacific coast have been consolidated—the Willys-Overland Co. of California and Overland Pacific, Inc.—under the name Willys-Overland Pacific Co. Frank Riggs is vice-president and general manager. He was manager of the Packard truck department in Detroit prior to becoming Packard dealer at Portland, Ore., from which position he left to become associated with the Overland company. The new company will serve California, Oregon and Washington and parts of Montana, Idaho, Nevada and Arizona.

Wisconsin Car Dealer Gets Fordson Tractor

T. W. Meiklejohn, of Service Motor Co., Fond du Lac, Named Distributer

FOND DU LAC, WIS., May 6—T. W. Meiklejohn, general manager of the Service Motor Co., Fond du Lac, Wis., and one of the best known distributers and dealers in the Northwest, has been selected as Wisconsin distributer of the Fordson tractor under the plan now in effect in Michigan and several other states. Meiklejohn volunteered his services and is donating his time to the tractor distribution by way of "doing his bit" during the present crisis. The first supply of tractors already has arrived and they are being displayed at the Service Garage, 41 East First Street, Fond du Lac. The Service company has been a district distributer of the Ford car for several years.

Chevrolet Service Managers Convene

FLINT, MICH., May 3—Zone service managers of the Chevrolet Motor Co. closed a 3 days' session here to-day. Over twenty were present and there were thirty-six present at the dinner given Thursday evening. F. A. Bonham, manager of the parts and service division, presided at the business sessions. M. E. Coyle, comptroller, was present from New York, as was also J. H. Newmark, manager of the advertising division. Both were speakers at the dinner.

Take Philadelphia Ford Plant

PHILADELPHIA, May 4—The plant of the Ford Motor Co., North Broad Street and Lehigh Avenue, has been commandeered by the United States government for storage purposes. The incumbents are given until May 16 in which to vacate the premises. The building is valued at $1,000,000, is ten stories high and contains more than ten acres of floor space.

Motor Car Securities Quotations

	Bid	Asked
*Ajax Rubber Co.	54	58
*J. I. Case T. M. Co., pfd.	84	86
Chalmers Motor Co., com.	5½	8
Chalmers Motor Co., pfd.	30	40
*Chandler Motor Co.	79	80
Chevrolet Motor Co.	119	123
*Fisher Body Corp., com.	33	35
*Fisher Body Corp., pfd.	82	87
Fisk Rubber Co., com.	50	53
Fisk Rubber Co., 1st pfd.	98	103
Fisk Rubber Co., 2nd pfd.	70	75
Firestone Tire & Rub. Co., com.	93	96
Firestone Tire & Rub. Co., pfd.	94	96
*General Motors Co., com.	115	117
*General Motors Co., pfd.	78¾	79½
*B. F. Goodrich Co., com.	43	44½
*B. F. Goodrich Co., pfd.	95	100
Goodyear Tire & Rub. Co., com.	144	149
Goodyear Tire & Rub. Co., pfd.	96	98
Grant Motor Car Corp.	3¼	4¼
Hupp Motor Car Corp., com.	2¾	3½
Hupp Motor Car Corp. pfd.	79	85
International Motor Co., com.	2	25
International Motor Co., 1st pfd.	50	58
International Motor Co., 2d pfd.	23	28
*Kelly-Springfield Tire Co., com.	41	43
*Kelly-Springfield T. Co., 1st pfd	79	85
*Lee Rubber & Tire Corp.	14	15
*Maxwell Motor Co., Inc., com.	25¾	26
*Maxwell M. Co., Inc., 1st pfd.	52	54
*Maxwell M. Co., Inc., 2d pfd.	18	21
Miller Rubber Co., com.	103	105
Miller Rubber Co., pfd.	95	97
Packard Motor Car Co., com.	95	105
Packard Motor Car Co., pfd.	89	92
Paige-Detroit Motor Car Co.	17	18
Peerless Truck & Motor Corp.	12	14
Portage Rubber Co., com.	107	109
†Reo Motor Car Co.	14	16
*Saxon Motor Car Corp.	7	9
Standard Motor Construction Co.	12	14
*Stewart-Warner Speed. Corp.	56	58
*Studebaker Corp., com.	*36	37
*Studebaker Corp., pfd.	75	100
Swinehart Tire & Rubber Co.	26	30
United Motors Corp.	24	24½
*U. S. Rubber Co., com.	56	57
*U. S. Rubber Co., pfd.	102½	104½
*White Motor Co.	41	42
*Willys-Overland Co., com.	17½	18
*Willys-Overland Co., pfd.	79	82
Standard Parts Co.	..	70

*At close May 4. Listed New York Stock Exchange. †Par value $10.

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Truck Train in Chicago on a Regular Schedule

Part of Goodyear Akron-Boston Fleet Is First Motor Convoy to Arrive in Windy City

CHICAGO, May 4—The first fully equipped motor truck train to reach Chicago running on a regular schedule arrived here May 1 at almost exactly the hour set when it left Akron, Ohio, Monday night. This means a 440-mile trip in 25½ hr., a time that surpasses prevailing railway freight schedules.

The trucks are part of a fleet which the Goodyear Tire & Rubber Co. is operating between Boston and Akron. The detachment consists of five trucks—1½-ton Packard, 3-ton Packard, 5-ton Packard, 3-ton White and 3½-ton Mack. The truck drivers worked in shifts, sleeping and eating en route, and the only stops were for bad roads or an occasional repair.

The trucks brought tires, tubes and other accessories to the Chicago Goodyear branch. They were met by delegations from the Chicago Association of Commerce, the Chicago Automobile Trade Association and the Traffic Club with a band, and the procession moved down Michigan and over Jackson Boulevard to the Board of Trade Building.

The trucks were loaded with 16 tons of Red Cross hospital supplies and started on a trip to Baltimore by way of Washington. The supplies are for immediate shipment to the army in France, and are those which have been delayed for several weeks because railroad transportation could not take care of them. A complete field kitchen, capable of serving 400 men at the front, is included. A detail of jackies and representatives is to give the train its send-off.

A feature of the train which is attracting much attention here is the use of the huge Goodyear pneumatic cord tires, the largest of which are 44 x 10 in. These tires are credited with the record of the trucks, which is 20 m.p.h. average speed for actual running time between Akron and Chicago.

Newman Retires From His Company

DETROIT, May 3—Harry Newman, Chicago, distributer of the Maxwell and Chalmers, has retired from his company, which will hereafter be a branch of the Maxwell company, in charge of Jack Banta, who has been assistant production manager of the Chalmers-Maxwell plant in Detroit. Newman, with the Maxwell distribution under his charge, took on the Chalmers again sometime ago, after having had it once and lost it to James Levy, the Chalmers distributer who relinquished it, regained it and returned it to Newman again.

Receiver for Pull-More Truck

NEW CASTLE, PA., May 7—A receiver has been appointed for the Pull More Motor Truck Co. W. S. Craig, assistant secretary, admitted the insolvency of the company, and joined in the request for a receiver.

Puts Campaign in Booklet Form

PHILADELPHIA, May 7—The Philadelphia *North American* is distributing a folder showing a series of advertisements it ran during the latter part of the winter to combat the then prevalent idea that the motor car was a "non-essential." The advertisements are put together in attractive form and are followed by reprints of letters from Philadelphia dealers expressing their approval of the stand taken by the *North American*.

Urge N. A. D. A. Help for Federal Licenses

Dealer Body Asked to Back Bill Making Licenses Usable in All States

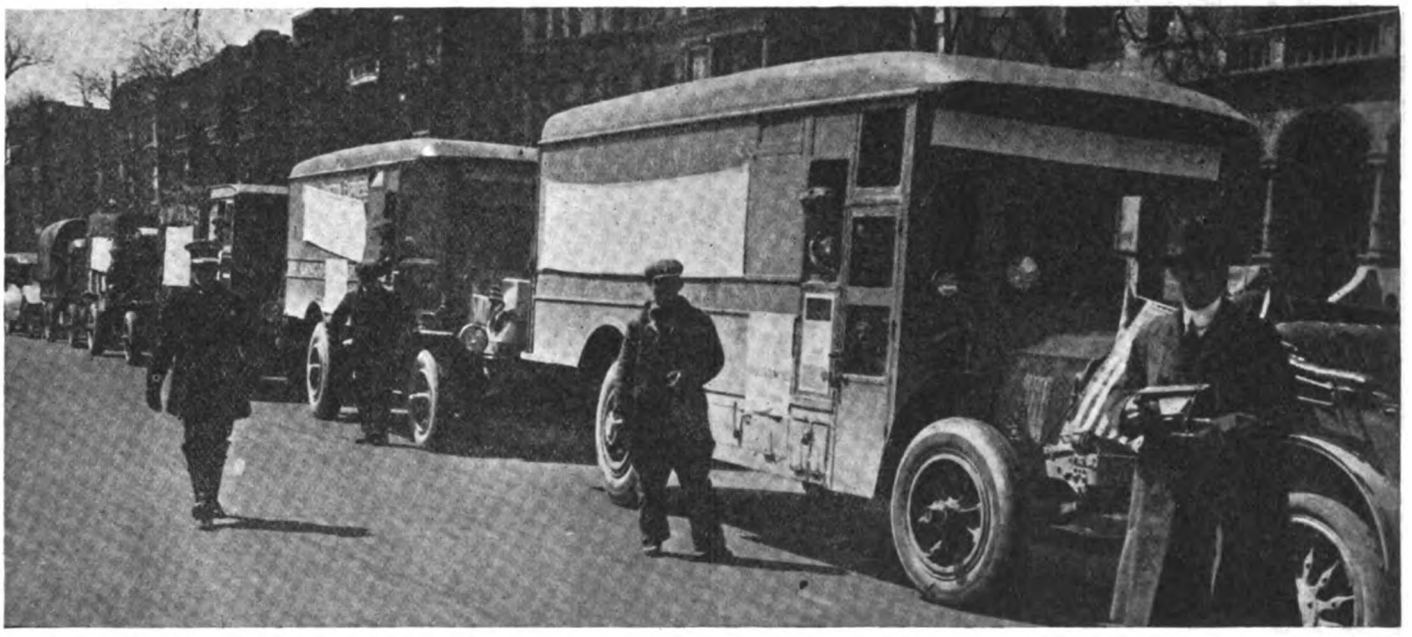
ST. LOUIS, MO., May 6—The National Automobile Dealers' Association has been asked to indorse U. S. Senate Bill 31, introduced by Senator Pittman, which provides that motor car licenses obtained from any state shall be recognized by any other state. The bill came up while President Vesper was in Washington and Secretaries Ruddle and Holke suggested to the sponsor of the bill that it be changed to expressly provide for driveaway cars. The question is taken up in this bill under the head of interstate motor car traffic.

Pence Enters Banking Field

MINNEAPOLIS, May 7—Automobile men are well represented on the board of the Lincoln National Bank, which opened to-day. Harry E. Pence, president of Pence Automobile Co., is chairman of the board. J. A. Graham, Northwestern manager for the Studebaker corporation, is a director as well as Don B. Mullen, president of Brehm-McMullen Co., distributer for Acme trucks.

Assemble Fordson Tractor in Columbus

COLUMBUS, OHIO, May 4—An assembling plant for the Fordson tractor will soon be erected in Columbus by Henry Ford & Son. The plant will be nearby the assembling plant of the Ford Motor Co., which is on Cleveland Avenue.



This detachment of the Goodyear Fleet consists of 5 trucks—a 1½-ton Packard, a 3-ton Packard, a 5-ton Packard, a 3-ton White and a 3½-ton Mack. A feature of the train which is attracting much attention is huge Goodyear pneumatic cord tires, the largest of which are 44 x 10

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-62	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	1595	....	1595	2150	2150	....	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1145	1095	....	....	1395	....	....
AMERICAN																	
B	6-3½x5	33.4	G & D	Zenith	G & D	DD	3	122	32x4	SS	1645	1595	1695	....	....	....	....
ANDERSON																	
20	6-3½x4½	25.3	Conn	Zenith	Wsths	DP	3	120	32x4	SS	**1465	....	....	....	2165	....	....
400-F	6-3½x5½	29.4	Bosch	Stmbg	Wsths	DD	3	120	33x4	SS	**1925	....	....	....	....	....	....
APPERSON																	
8-18	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	34x4 32x4½	SS	†2550	....	2550 3500	....	....	....	....
8th Anniversary																	
AUBURN																	
6-39-B	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	120	34x4	SS	1345	1345	....	....	....	....	1595
6-44	6-3½x5½	29.4	Delco	Rafid	Delco	DP	3	131	35x4½	SS	....	1685	1685	....	2450	....	1985
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142	34x4½	QD	3750	3750	4000	4550	5000	5250	....
BELL																	
18	4-3½x4½	22.5	A.Kent	Zenith	Dyneto	D	3	114	32x3½	QD	†995	995	....	....	....	....	....
BIDDLE																	
H	4-3½x5½	22.5	Eisman	Zenith	G & D	DP	4	121	32x4	QD	2600	....	†2650	....	4100	4000	....
BOUR-DAVIS																	
18B	6-3½x5½	29.4	West.	Stmbg	West.	DP	3	118	33x4½	QD	....	1785	....	....	....	....	....
	4-3½x5½	22.5	West.	Rafid	West.	DP	3	118	32x4½	....	....	1680	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	5500	....	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3½x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	825	825	....	....	....	....	850
BUICK																	
E 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	1185	1845	....
E 44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	....	†1695	....	....	1265
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	125 132	35x5 34x4½	SS	2970	†2970	2970	....	3840	4160	....
CASE																	
U	6-3½x5½	29.4	Wsths	Rafid	Wsths	D	3	125	35x4½	SS	†1875	....	1875	....	**2275	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wsths	DP	3	117 122	32x4 34x4	SS	1565	1565	1615	1625	1950	2025	....
CHANDLER																	
	6-3½x5	29.4	Bosch	Rafid	Wsths	DP	3	123	34x4	SS	†1595	†1675	1595	2195	2295	2895	....
CHEVROLET																	
490	4-3½x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3½	C	660	685	....	....	1060	....	....
FA	4-3½x5½	21.7	Remy	Zenith	A-Lite	C	3	108	33x4	SS	935	985	....	....	1475	....	....
D	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	120	34x4	SS	1385	1385	....	....	....	....	....
COLE																	
870	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	33x5	SS	2395	†2895	2895	2495	2595 2795	....	....
COLUMBIA																	
C&D	6-3½x4½	25.3	A.Kent	Stmbg	W.Lard	DP	3	115	32x4	....	†1495	1450	....	....	2395	....	....
COMET																	
C-50	6-3½x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	....	....	....	1285	....	....	....	....
COMMONWEALTH																	
4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	115	32x3½	SS	†995	1095	....	....	....	....	....
CROW-ELKHART																	
CE-36	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114	32x3½	SS	995	995	....	1295	1395	....	....
CUNNINGHAM																	
	8-3½x5	45.0	Delco	Stmbg	West	D	3	122 142	35x5 37x5	....	....	4250 4750	....	....	....	....	....
DANIELS																	
B	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	3250	3250	3250	....	....	....	....
DAVIS																	
H, I, K	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1585	1585	....	1850	....	....
J, I	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	125	34x4½	....	....	1950	1950	....	....	....	....
DISPATCH																	
	4-3½x5	22.5	Bosch	Rafid	U.S.L	CU	4	120	36x3½	QD	1150	....	1250	1400	1400	....	....

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	830	....	....	1095	....	....	865
B	6-3½x4½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	1050	1050	*1050	1650	1650	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3750	3700	3750	....	5180	5250	....
MAXWELL																	
25	4-3½x4½	21.0	A.Kent	K D	Simms	C	3	109	30x3½	C	‡825	825	....	....	1275	1275 1175	925
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wsths	DP	3	136	35x5	QD	3900	3900	3900	....	5000	5050	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3500	**3500	....	....	....	....	....
METZ																	
25	4-3½x4	24.0	A.Kent	A.W.T.	Wsths	F	.	108	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.3	Conn	Rafid	Splitdf	C	3	120	32x4	SS	1250	1250	....	1850	1950	....	300x
C-42	6-3½x5	29.4	Conn	Stmbg	Wsths	C	3	127	34x4	SS	‡1490	1510	1525	2125	2275	2350	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1650	1650	....	....	2280	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1985	....	1985	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	110	32x3½	SS	995	995	....	....	....	....	....
J	6-3½x4½	25.3	Conn	Stmbg	Dyneto	D	3	117	33x4	SS	1295	1295	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	31x3½	QD	565	‡635	....	....	965	....	....
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x3½	QD	....	995	....	....	1350	....	....
MOON																	
6-36	6-2½x4½	19.8	Delco	Titan	Wagner	DP	3	114	32x3½	SS	....	1295	....	....	....	....	....
6-66	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1985	....	1985	2650	2650	....	....
MOORE																	
30	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	106	30x3½	....	695	....	....	....	....	....	....
MURRAY																	
	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	....	2800	2800	2800	3600	....	4000	....
NASH																	
671	6-3½x4½	20.4	Delco	Rafid	Bijur	DP	3	125	34x4	SS	....	....	1465	....	....	....	....
681-683	6-3½x5	25.3	Delco	Marvel	Delco	P	3	121	34x4	SS	†1295	1295	....	....	1985	....	....
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafid	Wsths	C	3	128	34x4½	QDR	†2150	†2150	2150	2645	2820	....	....
Twelve	12-2½x4½	39.6	Delco	Rafid	Bijur	C	3	128	34x4½	QDR	†2750	†2750	2750	3245	3420	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	....	....	....
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1050	1050	....	1550	1550	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1550	....	....	....	....
37	6-2½x4½	18.9	Remy	Johnson	Remy	C	3	112	32x4	SS	†1195	1195	....	1595	1695	....	.. .
OLYMPIAN																	
	4-3½x4½	16.9	Conn	Stmbg	A-Lite	D	3	112	32x3½	....	†1085	1085	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	112	32x4	SS	‡965	985	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Titan	A-Lite	C	3	104 106	31x4	C	835	850	†875	....	1340	....	....
85B6	6-3½x4½	25.3	.....	Titan	A-Lite	C	3	116	32x4	....	1195	1195	....	1420	1620	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.7						136			†2950	†2950	2950	....	....	5000	....
W-42	6-4 x5½	38.4	Bosch	Zenith	O-M	OM	6	142	35x5	SS	....	....	5300	....	6300	6300	....
PACKARD																	
2-35								136			....	....	4300	....	....	5850	....
3-25	12-3 x5	42.2	Delco	Own	Bijur	DD	3	128	35x5	QD	....	3950	3950	5300	....	5500	....
PAIGE																	
6-39	6-3½x5	23.4	Remy	Stmbg	G & D	D	3	117 127	32x4	SS	1395	1395	....	....	1925	....	....
6-55	6-3½x5½	29.4	Remy	Rafid	Remy	D	3		35x4½	SS	....	....	1870	2850	....	3230	....

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DIXIE FLYER																			
L885	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	†995	985	....	....	1375	....	....
DOBLE-DETROIT																			
	2-5 x4	....	Doble	Stmbg	Wagner	..	.	135	36x5	....	....	....	3750	....	....	....	....
DODGE BROTHERS																			
	4-3½x4½	24.0	Delco	Stewart	N.E.	D	3	114	32x3½ / 32x4	SS	885	885	....	1350	1350	....	....
DORRIS																			
6-80	6-4 x5	38.4	Bosch	Stmbg	Wsths	DD	3	132	33x5	SS	....	....	....	....	....	....	....
DORT																			
11	4-3½x5	19.6	Conn	Carter	Wsths	C	3	105	30x3½	QD	865	865	**1000	1265	1265	....	....
ELCAR																			
D.F.	4-3½x5	19.6	A.Kent	L-O	Dyneto	DP	3	116	32x4 / 32x3½	SS	....	1095	1095	....	1625 / 1795	....	....
	6-3½x4½	25.3	A.Kent	Stmbg	Dyneto	P	3	116	33x4	....	....	1295	1295	....	....	....	....
ELGIN																			
A	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	117	33x4	....	†1095	1095	....	....	**1645	....	....
EMPIRE																			
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS	1165	1125	....	....	....	....	....
70-A	6-3½x4½	25.3	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	....	1345	1375	....	....	....	....
73	.....	....	.....	.....	.....	..	.	...	....	....	....	†1360	....	....	....	....	....
FIAT																			
E-17	4-5½x6½	44.1	Bosch	Zenith	Wsths	D	4	140	35x5	QD	....	....	5560	....	....	6560	....
FORD																			
T	4-3½x4	22.5	Own	Holly / Kngstn	.....	D	2	100	30x3½r	C	435	450	....	650	785	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	33x4½	SS	2200	†2445	2445	2850	3060	3200	....
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	....
GRANT																			
G	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	114	32x3½	....	‡1095	1095	....	1575	1595	....	1350
HALLADAY																			
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS	‡1185	1150	....	....	....	....	....
R	6-3½x5	29.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS	1385	1395	....	....	....	....	....
HARROUN																			
	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....	....	895	....	....	....	....	....
HARVARD																			
4-30	4-3 x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	785	†985	....	....	....	....	....
HAYNES																			
38	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1850	....	....	....	....	....
39	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1960	....	1960	2660	....	....	....
44	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2910	....	2910	....	3460	....	....
HOLLIER																			
206	8-3½x4½	25.3	Remy	Stmbg	Splitdf	C	3	116	32x4	SS	....	1485	....	....	....	....	....
188	8-3 x4½	28.8	A.Kent	Stewart	Splitdf	C	3	116	34x4	SS	†1485	1485	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	135½	34x4*	SS	....	†2050	1950	....	2750	3400	....
HUPMOBILE																			
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x4	....	1350	1250	....	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	950	1000	1025	....	....	....	....
JACKSON																			
349	8-3 x3½	28.8	A.Lite	Zenith	A-Lite	DP	3	118	34x4	SS	†1495	1495	1570	....	2195	....	....
JONES																			
26-AB	6-3½x5½	29.4	Remy	Rafid	Wsths	DP	3	125	34x4	SS	†1875	1875	1875	....	2750	....	....
JORDAN																			
J-60	6-3½x5½	29.4	Delco	Stmbg	Bijur	DD	3	127	35x4½	SS	1995	†1995	1995	....	2750	3500	....
KING																			
F	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	....	†2350	2150	....	**2950	....	....
KISSEL																			
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1495	1495	1585	1935	1935	....	1935
Double-6	12-2½x5	39.6	Delco	Stmbg	Own	DD	3	128	34x4½	....	1585	....	2450	....	2850	....	2850
KLINE																			
6-38	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1495	1495	†1495	....	2200	....	....
LEXINGTON																			
6-O	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	....	1385	....	....	1545	....	....
6-R	6-3½x4½	25.3	Conn	Rafid	Wsths	P	3	122	34x4	QD	....	1585	1585	....	1785	....	....
LIBERTY																			
10-B	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1385	1385	....	....	1925	....	....
LOCOMOBILE																			
E-38	6-4½x5	43.3	Berling	B & Ball	Wsths	DD	4	139	37x5	QD	†5150	*5000	5000	....	....	6200	....
E-48	6-4½x5½	48.6	Berling	B & Ball	Wsths	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7200	....
LOZIER																			
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1995	....	....	....	....
82	6-3½x6	36.0	Eisman	Rafid	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																			
17	6-3½x5	33.7	Beach	Schebler	Beach	DD	.	132	35x4½	SS	....	....	1650	....	....	....	....
MADISON																			
	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	124 / 120	34x4	SS	†1485	1485	1485	....	....	....	....
PAN-AMERICAN																			
G-5	6-3½x5	23.4	G & D	Rafid	G & D	D	3	120	33x4½	SS	....	1650	....	1650	....	1950	....
PATERSON																			
6-45	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	120	32x4	C	†1295	1265	1295	....	**1795	....	....
PEERLESS																			
56	8-3½x5	33.8	A.Kent	B&Ball	A-Lite	DD	3	125	35x4½	SS	†2550	....	2550	2850	2900	3600	....
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	34x4½	QD	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60.0	Bosch	Own	Wsths	C	4	147½	36x5½	QD	†6400	6400	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	23.4	Delco	Titan	Delco	DP	3	120	32x4	SS	†1395	1395	....	....	....	....	....
PREMIER																			
6-C	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	....	†2285	2285	....	....	....	....
PRINCESS																			
36-F	4-3½x4½	22.5	Splitdf	Schebler	Disco	D	3	108	32x3½	....	875	875	875	....	....	....	....
REGAL																			
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD	....	795	....	....	....	....	....
REO																			
	6-3½x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	1550	1550	....	....	....	....
	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	120	34x4	SS	1225	1225	....	....	....	....	....
REVERE																			
	4-4½x6	30.6	Beach	Stmbg	Bijur	DD	4	130	32x4½	....	....	....	....	....	....	....	....
ROAMER																			
C-6-54	6-3½x5½	29.4	Beach	Stmbg	Bijur	DP	3	128	32x4	SS	2350	†2250	2475	....	....	....	....
D-4-75	4-4 x6	25.6	Beach	Stmbg	Bijur	DP	3	128	32x4½	SS	2950	....	3250	....	3950	....	....
ROSS																			
	8-3½x5	33.8	.....	.....	W.Lnrd	DD	3	130	35x4½	SS	‡1850	....	1850	....	....	....	....
SAXON																			
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	935	1045	....	1395	....	....	....
SAYERS																			
SIX-42	6-3½x4½	25.3	Delco	.....	Delco	P	3	118	32x4	....	....	1395	....	....	....	....	....
SCRIPPS-BOOTH																			
D&H	8-2½x3½	23.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1285	....	....	....	....	....	....
G	4-3½x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	‡935	....	....	....	....	....	....
Six-39	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1195	1195	....	....	....	....	....
SIMPLEX																			
V	6-4½x6½	45.9	Eisman	Nwcmb	Bosch	D	4	143½	37x5r	QD	Chassis	7000	....	....	....	....	....
SINGER																			
	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	139	35x5	QD	4200	†4325	4100	....	5250	5125	....
STANDARD																			
G	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	....	†2450	....	2450	....	3500	4000	....
STANLEY																			
Steamer	2-4 x5	12.8	.....	.....	.....	..	.	130	35x4½	SS	....	†2750	2800	....	....	....	....
STEARNS																			
SKL4	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS	†1935	1935	2175	2400	2575	3200	....
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	125	35x4½	SS	†2700	....	2700	3200	....	3875	....
STEPHENS																			
Salient Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	118	32x4	QD	1585	1585	†1650	....	2085	....	....
STUDEBAKER																			
SH-4-40	4-3½x5	19.6	Remy	B&Ball	Wagner	C	3	112	32x3½	SS	1050	995	....	....	1525	....	....
EH-6-50	6-3½x5	29.4	Remy	B&Ball	Wagner	C	3	119	32x4	SS	1450	1395	†1395	....	....	....	....
E-G-6	6-3½x5	36.0	Remy	B&Ball	Wagner	C	3	126	33x4½	....	....	1795	....	....	1950	....	....
STUTZ																			
S	4-4½x5	30.6	Bosch	Stmbg	Remy	C	3	126 / 130	32x4½	SS	2550	†2650	*2750	....	....	....	....
SUN																			
17	6-3½x5	29.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	....	....	....	....
TEMPLAR																			
A-445	4-3½x5½	18.2	Remy	Zenith	Remy	P	3	118	32x4	SS	2365	2085	....	....	....	....	....
VELIE																			
38	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS	1340	1340	†1340	....	1885	....	....
39	6-3½x5½	29.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS	....	....	1595	....	....	....	....
WESTCOTT																			
S-18	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1890	1940	1940	**2790	**2790	....	....
WHITE																			
16-Valve	4-4½x5½	28.9	.....	Own	L-N	P	4	124½ / 137½	35x5	U	†5000	....	†5000	6050	6050	6900	....
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	121	34x4½	SS	....	....	1625	2275	2325	2425	....
88-8	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	125	34x4½	SS	†2550	....	2100	....	2800	2900	....
WILLYS																			
80-6	6-3½x5½	29.4	Conn	Titan	A-Lite	C	3	120	33x4½	SS	†1450	....	1450	....	1330	....	....
WINTON																			
33	6-3½x5½	33.7	Beach	Rafid	Bijur	DD	4	128	36x4½	QD	3150	3150	3200	4150	4400	4400	....
48	6-4½x5½	48.6	Beach	Rafid	Bijur	DD	4	138	37x5	QD	3850	3850	3850	4850	5100	5100	....
WOOD'S																			
Dual Power	4-2½x4	12.1	A.Kent	Stmbg	Own	Mag	.	124	35x4½	QD	....	....	....	2850	....	....	....

*5-passenger. †4-passenger. ‡3-passenger. t-town car.
**Convertible.

ABBREVIATIONS—"A. Kent" Atwater Kent, "A-Lite" Auto-Lite, "B. & Ball" Ball & Ball," "Conn" Connecticut, "G & D" Gray & Davis, "Eisman" Eisemann, "L-N" Leece-Neville, "N. E." North East, "Nwcmb" Newcomb, "O-M" Owen Magnetic, "Rafid" Rayfield, "Stmbg" Stromberg, "Splitdf" Splitdorf, "Titan" Tillottson, "Wsths" Westinghouse, "W. Lnrd" Ward Leonard, "D" Disk, "DD" Dry Disk, "P" Plate, "DP" Dry Plate, "C" Cone, "F" Friction, "G" Gearless, "CU" Control Unit, "Mag" Magnetic, "SS" Straightside, "QD" Quick Detachable, "C" Clincher, "DC" Detachable Clincher, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers, . NOTE—37½x5½ r means that the rear tires are 37x5½ and the front are smaller. Detachable top, 300x, means $300 extra.

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Studebaker Advances Many Men

DETROIT, May 3—A number of promotions in the sales organization of the Studebaker Corp., South Bend, have been made. One of the most important is that of R. H. Williams, former manager of the Detroit branch, to the position of assistant director of sales under L. J. Ollier, vice-president. J. E. Grady, for 3 years sales manager of the Studebaker Corp. of Canada, Ltd., Walkerville, will assume the added duties of manager of the Detroit branch, succeeding Williams. S. A. McGonigan, former manager of the automobile division at South Bend, will become his assistant. L. A. Keller, who has been at various times manager of the branches at Omaha and Portland, Ore., and more recently head of the Los Angeles branch, will hereafter be at the offices as manager of branches. George L. Willman, advertising manager, has been advanced to manager of the Chicago wholesale branch and will have direct control of the wholesale distribution of the Studebaker cars throughout much of the middle west. A. J. Brechtel, for 2 years assistant to the sales manager of the commercial car division, has been promoted to the management of the Des Moines wholesale branch. Perry E. Newell, assistant office manager of the automobile division, has been appointed assistant manager of the Cleveland district sales organization.

Rickenbacker Gets His German

DETROIT, May 2—Lieutenant Edwin Victor Rickenbacker, a former Detroiter, and one of the most prominent racing drivers in the United States, has brought down his first German airplane. Rickenbacker went to France as personal chauffeur for General Pershing. After 9½ years of racing on America's automobile speedways he left Detroit last May for Cincinnati to drive the Detroit special in the speedway race there. He was then offered the opportunity to go to France with General Pershing. He enlisted and was made a sergeant. He accompanied General Pershing as his personal chauffeur in his tour of all sectors on the western front. Later he obtained a transfer to the signal corps, 5 weeks after which he completed the usual 3 months course of instructions. He was commissioned first lieutenant and assigned to the mechanical division, later being transferred to the flying division.

Two Men

(*Continued from page* 17)

have all said each man must be two men where last year he was only one, but I'm afraid it has been just words with some of us and that we haven't stopped to think how it applies to ourselves. We have pictured in our minds this great American nation becoming more efficient and producing more and more and more with the same number of men—or less—and we haven't tried to find out what part we ourselves play in that plan.

"This is, to my mind, one of the places where we fit in. We must change our habits of thought. If we have thought a salesman could sell only one thing we must take another think. Instead of hiring extra men we must find ways for the old men to do additional things—and earn more. We must all do more. We must throw away our old minds and ways and get new ones and do things we never thought of doing.

"When a salesman walks into a prospect's office the salesman must say he represents C. J. Reilly, Incorporated, and not the Sennett car or the Sayanna truck. Then the prospect, knowing what we handle, will wonder 'what's he going to sell me?' and before the salesman gets through he may sell the man the whole line, whereas, if the salesman announces that he represents the Sennett car, the prospect knows that is what the salesman has to sell, and the prospect is rather surprised when the salesman tries to bring the truck into the argument.

"Last year, Tommy, with our nice little car agency we were pretty much a one-horse, one-legged business. This year we're going to make the old business do things it never did before, and I believe our salesmen can do the same thing. What say?"

"I'm for it!" Tommy displayed considerable enthusiasm. "Anyway, they say it can't be done—so let's do it."

Buick Has 4000 in Service

FLINT, May 2—More than 4000 Buick employees are now in government service, according to latest reports, and employees of the company are still leaving for training centers daily.

Hupp Advances Prices $100

DETROIT, May 6—The new prices of both the Hupp touring car and roadster are $1,350 instead of $1,250. This advance was effective May 1.

Reorganize Bosch Personnel

NEW YORK, May 4—Arthur T. Murray, of the Bethlehem Motor Co., Allentown, Pa., will have charge of the operation of the Bosch Magneto Co., recently taken over by the United States Government through A. Mitchell Palmer, custodian of alien property. The company under Government management has been reorganized and Christian Girl, quartermaster corps, U. S. A., and William G. Fitzpatrick, assistant director of the bureau of investigation, have been designated additional directors. The officers of the company under the reorganization now are as follows: Joseph A. Bower, Liberty National Bank, New York, president; Christian Girl, vice-president; William G. Fitzpatrick, secretary; George A. MacDonald, Springfield National Bank, treasurer, and Arthur H. D. Altree, New York, formerly sales and credit manager of the Bosch company, assistant treasurer. The production capacity of the plant will be materially increased.

Scrap Metal and Rubber Prices

NEW YORK, May 4—Following are scrap metal prices paid by New York dealers for scrap metals during the past week. They are from *Iron Age:*

	Cents per lb.
Copper, heavy and crucible	23.50
Copper, heavy and wire	23.50
Copper, light and bottoms	21.00 to 21.50
Brass, heavy	16.25 to 16.50
Brass, light	12.00 to 12.25
Heavy machine composition	23.75 to 24.00
No. 1 yellow rod brass turnings	13.00 to 13.50
No. 1 red brass or composition turnings	19.00 to 20.00
Lead, heavy	6.50
Lead, tea	5.50
Zinc	5.50

Prices paid for scrap rubber by reclaimers follow:

	Cents per lb.
Tires	5-5¼
Inner tubes, No. 1	21-22
Inner tubes, No. 2	10¾-11

Schlecht St. Louis President

ST. LOUIS, May 4—The St. Louis Automobile Manufacturers' and Dealers' Association has re-elected as president Joseph A. Schlecht of the Mound City Buggy & Auto Co. The other officers follow: Vice-president, P. H. Brockman, DeLuxe Automobile Co.; treasurer, H. I. Schnure, Velie Automobile Co. Directors, F. W. A. Vesper, Vesper-Buick Automobile Co.; F. R. Tate, Tate-Gillham Motor Car Co.; I. G. McNiece, Cadillac Automobile Co.; W. L. Johnson, Johnson Automobile Co.; W. S. Roberts, J. I. Case T. M. Co.; C. R. Frampton, Hudson-Phillips Motor Car Co.

Germans Have New Fighting Plane

NEW YORK, May 4—An American airman in France has brought down a new type of German airplane known as the Pfalz D3. This is a single-seater chasing machine. It is extremely small, the entire spread being less than 32.8 ft. It is a good deal like the Albatros, but does not seem to have much ascension speed. Another plane of the same type has been brought down by a French aviator.

Coming Events

Racing

Uniontown, Pa.	Uniontown Speedway Assn.	May 16
Sheepshead Bay, N. Y.	Championship	May 30
Chicago	Chicago Speedway	June 22
Cincinnati	Cincinnati Speedway	July 4

Conventions

Hot Springs, Va.	Convention National Association of Automobile Accessory Jobbers.	June 5-1

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BE PREPARED

MOTOR WORLD

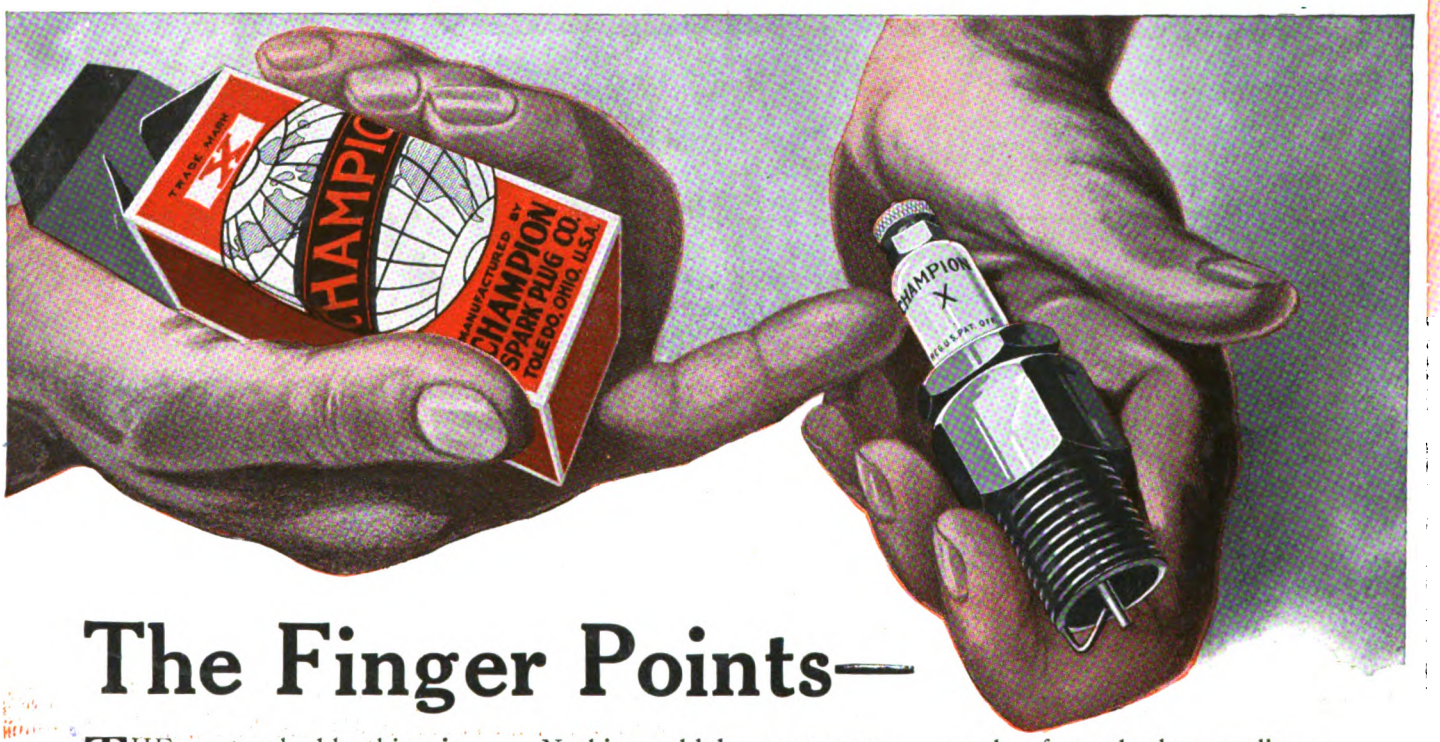
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DEALERS, JOBBERS AND GARAGEMEN

Volume LV
No. 7

New York, May 15, 1918

Ten cents a copy
Two dollars a year



The Finger Points—

THE most valuable thing in business is good will.

And good will is just a reputation for quality.

It attracts steady customers—therein lies its great value.

Nothing sold by garagemen, auto supply dealers and hardware dealers is so representative of distinctively superior quality as Champion Dependable Spark Plugs.

So the finger points to the mark of spark-plug quality—that one word "Champion" on the porcelain of the plug.

Sell Champions—their quality attracts steady customers—establishes that most valuable asset in business—good will.

Champion Spark Plug Company
Toledo, Ohio

CHAMPION TRADEMARK

Champi

Dependable Spar

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Advertisers' Index—

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2 SECONDS AGO → AND NOW

The

NEW UTILITY DISAPPEARING TRUCK

Has Proved a Huge Success

As we expected, dealers are quick to see the possibilities in the agency for this proposition. They see that the field is practically unlimited because every person who owns a Ford roadster is a prospect whether he is in business or not. And merchants can be induced to buy a Ford roadster because it will be a half-ton truck as well as a passenger car.

In two seconds a Ford roadster is converted into a half-ton truck and back again. The truck is completely out of sight under the ORIGINAL turtle back of the Ford. When not in use the **Utility Disappearing Truck** cannot be seen by the most careful examination.

Can be completely installed by **anyone** with a hammer and wrench in **one hour.** Only four bolts used in attaching it. No rattle, no vibration—a firm, secure truck body made of heavy gauge steel.

The turtle back cannot be injured or marred when Ford is being used as a truck. It lifts up automatically and protects back of seat from scratches. Even when the UTILITY DISAPPEARING TRUCK is in use the Ford does not lose any of its original appearance. It is still a trim, neat little runabout. There is no doubt about the tremendous sale that awaits this wonderful invention.

MAKES A FORD THE MOST USEFUL CAR ON THE MARKET

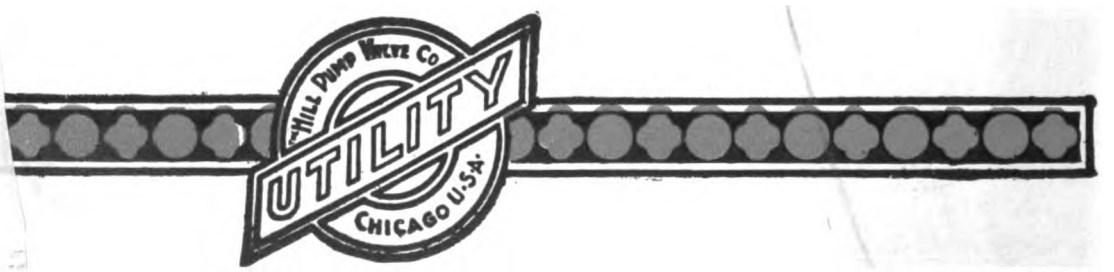
No matter what the nature of the load to be carried, if it does not exceed a half ton it can be carried quicker and cheaper with the UTILITY DISAPPEARING TRUCK. No extra attachments or parts—just lift the turtle back, slide out the UTILITY DISAPPEARING TRUCK and have a half ton truck in 2 SECONDS.

Made of heavy gauge steel, beautifully finished in black baked enamel, and can be pulled out to the desired length. Practically indestructible because no bolts or rivets are used in the acetylene welded body.

DEALERS Order your sample now and write for complete details and the agency for your community.

HILL PUMP VALVE COMPANY Archer Ave. and Canal St. Chicago

York, 149 Church Street Seattle, L. C. Smith Building San Francisco, 149 New Montgomery Street Kansas City, Rialto Building



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MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

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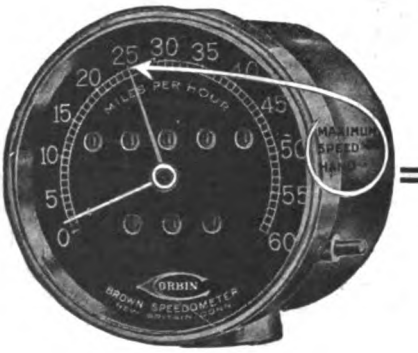
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Why the Corbin-Brown Centrifugal Principle Is Best

MOST motorists know that the Corbin-Brown speedometer operates on the centrifugal principle, but not all of them stop to consider the great importance of that principle in giving perfect accuracy.

Science has proven that a mechanism built on the centrifugal principle is not affected by changes in temperature or by electrical influence. That is why you have a sure guarantee of lasting reliability in the

CORBIN-BROWN SPEEDOMETER

No matter how high or how low the temperature may be, your Corbin-Brown gives you the usual flawless record. Although your Automobile will probably be equipped with an electric lighting system and electric self-starter, your Corbin-Brown will not feel the increased electrical influence.

This assurance of perfect accuracy which is given by the instrument itself is carried through all other features of the mechanism. Every part is made by experts from the highest grade materials, carefully inspected and tested and finally covered by the Corbin guarantee of quality.

Investigate the Corbin-Brown Maximum Speed Hand. This extra feature indicates your highest speed and remains at that point until reset to zero, which can be done in an instant at any time. It is a great convenience to know that the record of speed will remain until you are ready to inspect it at leisure.

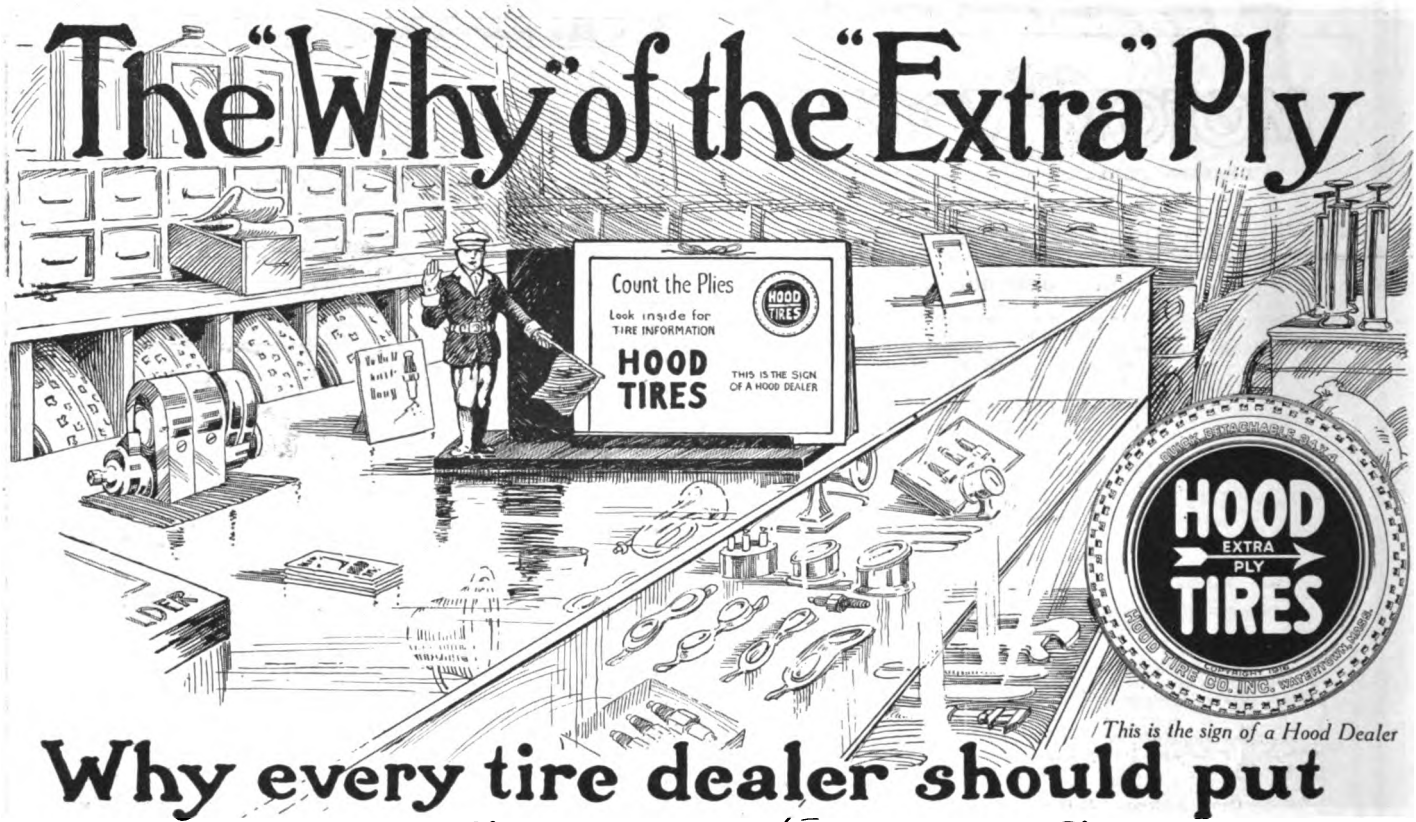
Write For Catalog

Corbin Screw Corporation
American Hardware Corporation, Successor
NEW BRITAIN, CONN.

BRANCHES: New York Chicago Philadelphia

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The "Why" of the "Extra" Ply



This is the sign of a Hood Dealer

Why every tire dealer should put this Silent Salesman on his Counter

Because this Silent Salesman proves "Why" the Hood Arrow Tread Extra Ply Tire has won a reputation for low cost mileage that, tire for tire, is unequaled in the business—

Because this Silent Salesman shows the different construction of the Hood Tire, its greater wear resisting strength, its thickness, toughness, quality—

Because this Silent Salesman gives a convincing sales reason to every tire purchaser and any Hood Tire will back it with performance.

Because this Silent Salesman makes sales and Hood Tires keep them repeating for every dealer who sells them—

Because repeat orders and selling a tire that gives you a reputation for quality is an asset, good business to invest in—

Because we place a large organization behind you, working all the time to promote your sales by national advertising and personal assistance and—best of all—give you a tire on which you can make the most profit per tire sold.

Write us—let us prove it. Fill out and mail the coupon.

Send for free booklet on "Tire Information"

Fill out and mail this Coupon today

Send me Free Booklets on Tire Information.

Name .....

City .....

State .....

HOOD TIRE CO., Inc.

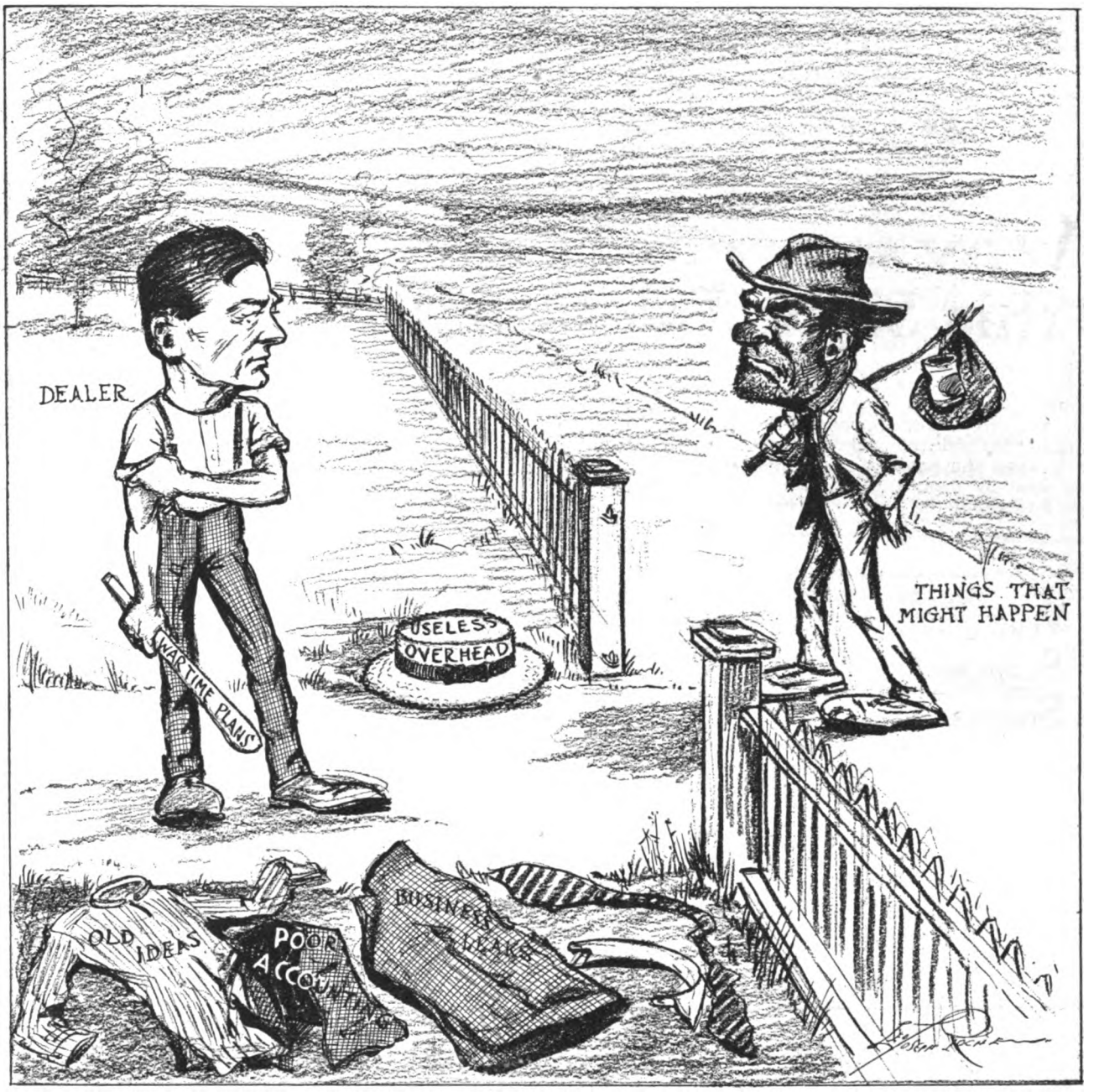
WATERTOWN, MASS.

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LV New York, U. S. A., Wednesday, May 15, 1918 No. 7

Be Prepared



In these days of change no one can tell just what conditions will be a few weeks or months ahead. No one can say how many cars will be built during the next year. No one can prophesy anything. But, regardless of what happens, every dealer should get his business in a most healthy and ready condition. Then, no matter whether the wind be favorable or adverse, he will be fit to meet it. *Read the story on page* 10

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Selling Thrift to the Employee

How One Company Has Made Its Workers Better Workers and Netted Large Funds for the Government's War Work

WE all bought Liberty Bonds —and we all have a few extra quarters left.

A quarter is a small item—but it buys a war savings stamp, which has been made familiar to millions through "W. S. S."

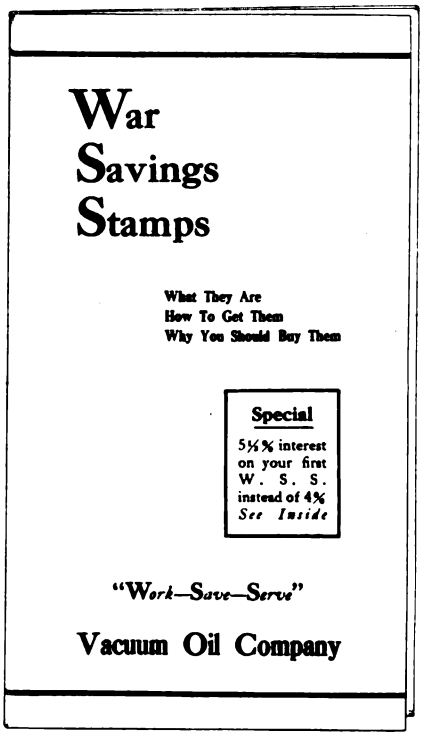
Thrift and the absence of wastefulness are admirable qualities in employees. They are so valuable in making employees better workers that the Vacuum Oil Co. is investing its own money in stamps, provided the employees will "get the habit."

It is a worth while idea.

Read the story and see if there isn't an opportunity for YOUR organization to get behind this year-around government financing plan.

In order to stimulate and increase the sales of war savings stamps among employees, the Vacuum Oil Co., New York, instituted a sales competition among departments, refineries and branches of the company.

Previous to this time the company had been urging the sale of war savings stamps in about the same manner as is probably used by many other business concerns throughout the country. That is, war savings stamp posters were put up in various conspicuous places, "stamp agents" were appointed and employees were urged to lend their money to the government.



This is the folder issued to employees, setting forth the advantages of investing in war savings stamps

But with the starting of the competition conditions changed and tremendous increases of purchases by employees throughout the entire organization resulted.

Gave Last Stamp Free

To further the competition and to encourage each employee to start a thrift card the company offered each employee the sixteenth stamp free on his or her first filled thrift card, and this offer of the free thrift stamp likewise had a great stimulating effect.

A general idea of the contest follows:

For practical purposes the branch organization is the unit of operation. All the departments at a branch compete among themselves and are ranked at the end of each week on a basis of "average investment per employee."

The average investment per employee is determined by adding the total cash value of the stamps purchased by the department during a past period of the contest and dividing this total cash value by the number of employees in the department. For example:

How Workers Are Rated

If there are 15 employees in a department and the total cash value of the stamps purchased is $27.45 the average investment per employee is $1.83—$27.45 divided by 15.

The department having the highest average investment per employee leads for the ensuing week in that branch. Once a month the sales for all departments at a branch are totalled and this result entered in competition with results at the other branches. The branch showing the highest average investment per employee leads for the ensuing month.

In the weekly contest among departments and in the monthly contest among branches the figures used are accumulative; that is, the total (accumulative) sales for the entire past period are used in determining the average investment per employee.

How Company Organizes

The stamp sales organization for this company is as follows:

1—Department Stamp Agent

One employee in each department is the department stamp agent. He receives and accounts for the thrift stamps sold in his department and reports weekly to the branch stamp manager on the proper forms.

Except in unusual circumstances he does not sell $5 war savings stamps, exchange thrift cards for $5 war savings stamps or deliver the free thrift stamp offered by the company.

2—Branch Stamp Manager

This post is held by a responsible employee at each branch. He purchases, distributes and accounts for all thrift stamps and $5 war savings stamps sold at the branch.

From him the department stamp agents obtain thrift stamps as needed, and to him they make their weekly reports.

Only the branch stamp manager may sell the $5 war savings stamps outright, exchange them for thrift cards or deliver the free thrift stamp offered by the company.

Each branch stamp manager reports monthly to a department in the head office in New York, where the branches are ranked in the contest.

WAR SAVINGS STAMP CAMPAIGN
DEPARTMENTAL EMPLOYES STAMP RECORD

For Four Week Period Ending March 30th, 1918

Pos.	Employes	Number Stamps Bought
1.	A. W. Jones	78
2.	C. B. Smith	52
3.	C. O. White	48
4.	F. W. Greene	26
5.	P. F. Rose	22
6.	I. Burns	18
	L. H. Brown	18
7.	W. H. Edwards	17
	Miss Thomas	17
8.	J. Ford	16
	P. E. North	16
9.	A. G. Adams	15
10.	G. Harold	13
11.	E. Mains	12
	S. Glan	12
12.	C. D. Beard	11
13.	J. A. Jush	8
14.	Miss Street	6
	Miss Allen	6
	TOTAL	411
	Cash Value	$102.75
	Aver. No. of Stamps bought by each member of department	21.6
	Cash Value	$5.40
	Aver. weekly investment per person	$1.35

This shows a departmental employee's stamp record. When a record similar in form to this is posted in each department it gives every employee in that department his or her own personal standing and it is a great help to the department stamp agent in soliciting purchases from individual employees

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Foreign Shipping
L. G. Callahan

March 4	25 Thrift		6.25	
	Cash			6.25
4	25 Thrift		6.25	
	Cash			6.25
4	20 Thrift		5.00	
	Cash			5.00
4	20 Thrift		5.00	
	Cash			5.00
4	10 Thrift		2.50	
	Cash			2.50
4	20 Thrift		5.00	
4	4 W.S.S.		16.56	
	Cash			16.56
5	75 Thrift		18.75	
5	1 W.S.		4.14	
5	" Exchange		.14	
5	Cash			28.03
6	50 Thrift		12.50	
7	40 Thrift		10.00	
	Cash			10.00
8	5 W.S.		20.70	
	Cash			20.70
8	2 W.S.		8.28	
8	Cash			8.28
9	Exchange		.42	
9	Cash			12.92
9	100 Thrift		25.00	
			$146.49	$ 121.49
			25.00	
			$121.49	

A reproduction of an actual cash book page showing transactions for a week in a department at New York City. A little study will show the simplicity and accuracy of this method of keeping accounts. By referring to it you will see that stamps delivered to this department by the branch stamp manager are entered in the left-hand column. The actual cash received by the branch stamp manager is entered in the right-hand column.

The first six items show that on March 4 the stamp agent of this department procured 120 thrift stamps for sale. As a department stamp agent turns over to the branch stamp manager the cash received from sales it is entered in the right-hand column. The last March 4 order for 20 thrift stamps shows that the cost was charged against the stamp agent but that the cash was not returned that day. This is accounted for later.

The next item, "March 4, 4 War Savings Stamps—$16.56," shows that four war savings stamps were sold to members of that department at the March rate of $4.14 each. The cash was immediately forthcoming as shown on the next line.

Under March 5 we see that 75 thrift stamps for a value of $18.75 were given to the department stamp agent; next, that one war savings stamp was sold for $4.14.

The word "Exchange" on the third line, March 5, means that a thrift card filled with thrift stamps was turned in to be exchanged for a $5 war savings stamp.

The thrift stamps on this card had all been accounted for above so that the only cash income from this sale was the 14 cents premium required by the government to exchange the thrift card.

On the following line "Cash $28.03" we find that the money was received for the above three items and in addition, the $5 to be paid for the 20 thrift stamps given the stamp agent the evening before. Thus the two columns balance each other.

March 9, being Saturday, closed the week's transactions.

3—Group Managers

These men form the executive stamp campaign committee at any branch, but do not take part in actual stamp sales. Each group manager has several departments under his supervision, and it is his business to stimulate and promote stamp sales in these departments.

The position of group manager is a very important one in the success of the campaign. It is vital that the group managers be live wires, for in contests of this sort and, for that matter, in any sort of contest extending over a considerable period of time, the interest in the contest must be maintained at white hot heat throughout if it is to accomplish maximum results. This depends in no small measure on the work of the group managers.

How It Operates

Briefly stated, the mechanics of the competition are:

The stamp agent in each department turns in weekly to the branch stamp manager the following data:

1—Number of employees in the department.

2—Total cash value of purchases made by all employees since the beginning of the competition.

3—Average investment per employee derived from the above figures.

4—The number of employees in the department who bought stamps during the current week.

5—The percentage of employees who bought stamps during the current week.

This information shows not only the amount invested by employees but whether or not they are regular purchasers, this latter being one of the chief aims of the competition.

When he has received the above data from all departments the branch stamp manager ranks the departments in the order of their average investment per employee, typewrites them in their correct order and sends a bulletin to each department for posting.

The monthly contest among branches is operated similarly, except that the data include all employees in the branch and cover total sales at the branch for the month.

The branch stamp managers send this data to the New York office, where they are tabulated and the branches ranked in order of their average investment per employee.

Sidelights on the Contest

In order to keep interest in the competition constantly fresh large blackboards are placed in the main halls showing each week the standings of all departments. At the same time a smaller blackboard in each department shows the weekly standing of that department in comparison with other departments in its group.

In addition, bulletins are sent to each department from time to time touching on the progress of the contest and describing interesting features.

War Stamp Sales Folder

The company also publishes a war savings stamp folder, which points out the attractiveness of war savings stamps as an investment, and this booklet has been widely circulated throughout the entire organization.

Branch managers, group managers and department managers take great pride in getting as large a percentage of employees in their department as pos-

WEEKLY RECORD INTER-DEPARTMENTAL
WAR SAVINGS STAMPS CAMPAIGN

Week Ending April 6th, 1918.
Total Period of 8 Weeks.

Note. The leading department is the department with the "Highest Average Investment per Employe."

Department	ACCUMULATIVE PERIOD: Number of Employes	Total Cash Value	Average Investment per Employe	CURRENT WEEK: Number of Employes Buying Stamps	% of Employes Buying Stamps
Steamship Department	6	$ 449.96	$74.99	6	100%
Traffic Department	9	297.17	29.64	5	55.5%
Foreign Shipping Department (Mr. Rowland)	57	1066.61	29.84	57	100%
Foreign Shipping Department (Mr. Reffer)	14	401.74	28.69	14	100%
Engine Builders Department	9	187.18	20.79	9	100%
Accounting Department	26	520.26	20.01	26	100%
New York General Department	35	641.69	18.34	35	100%
Purchasing Department	29	486.56	16.70	29	100%
Executive Offices Mail Department File Department General Stenographic Department Statistical Department Code Department Messengers	28	500.44	15.16	20	90.9%
Marine Department	22	319.07	14.50	22	100%
Ship & Warehouse Department	60	860.91	14.34	60	100%
New York Automobile Department	39	566.67	14.34	19	48.7%
Manufacturing Department	14	198.52	9.66	14	100%
Advertising Department	19	179.52	9.24	19	100%
Bunkers Department	5	45.94	8.79	5	100%
Technical Department	7	59.78	8.26	7	100%
Refined Oil Department	20	61.26	8.15	5	80%
Outside Marketers	6	39.42	6.57	6	100%
Order Department	11	84.17	8.11	11	100%
Inspectors	14	60.14	4.27	10	71.4%
TOTAL	404	$6870.68	$17.00	372	92.0%

This is a sample of a branch report bulletin. The data on it are transferred to the large blackboards in the main corridors at that branch and a bulletin is also posted in each department of the branch in order to let all the employees of the branch see just where their department stands

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sible to purchase stamps regularly each week, and are continually sending out letters, bulletins, etc., calculated to maintain interest in the contest.

As a means of keeping track of the free thrift stamps given by the company, all first thrift cards issued to employees are numbered by the branch stamp manager.

As each is given out the name of the employee receiving it is entered on a sheet opposite the number. As these thrift cards filled with fifteen stamps are returned, it is a simple matter for the branch stamp manager to check the free stamps given.

Results of the Plan

During the first month that war savings stamps were sold at the New York office, that is, the four weeks previous to the opening of the contest, $800 worth of stamps had been purchased by the employees.

In the *first week* of the contest $970 worth of stamps were bought at the New York office.

Results of the Fifth Week

For the fifth week the results of the contest in the New York office alone were as follows:

Number of employees.....	404
Total value stamps purchased...	$6,870
Average investment per employee	17
Percentage of employees buying stamps regularly each week...	92%

The total amount of war savings stamps purchased by the employees of the company during the period from March 4 to March 30, *less than one month*, was $13,751.79.

In the four refineries of the company at Bayonne and Paulsboro, N. J., Rochester and Olean, N. Y., the employees purchased considerably over $9,000 worth of stamps.

These are figures that talk.

How many employees have you?

What is the average investment in war savings stamps per employee in your organization?

Do you know?

Why not?

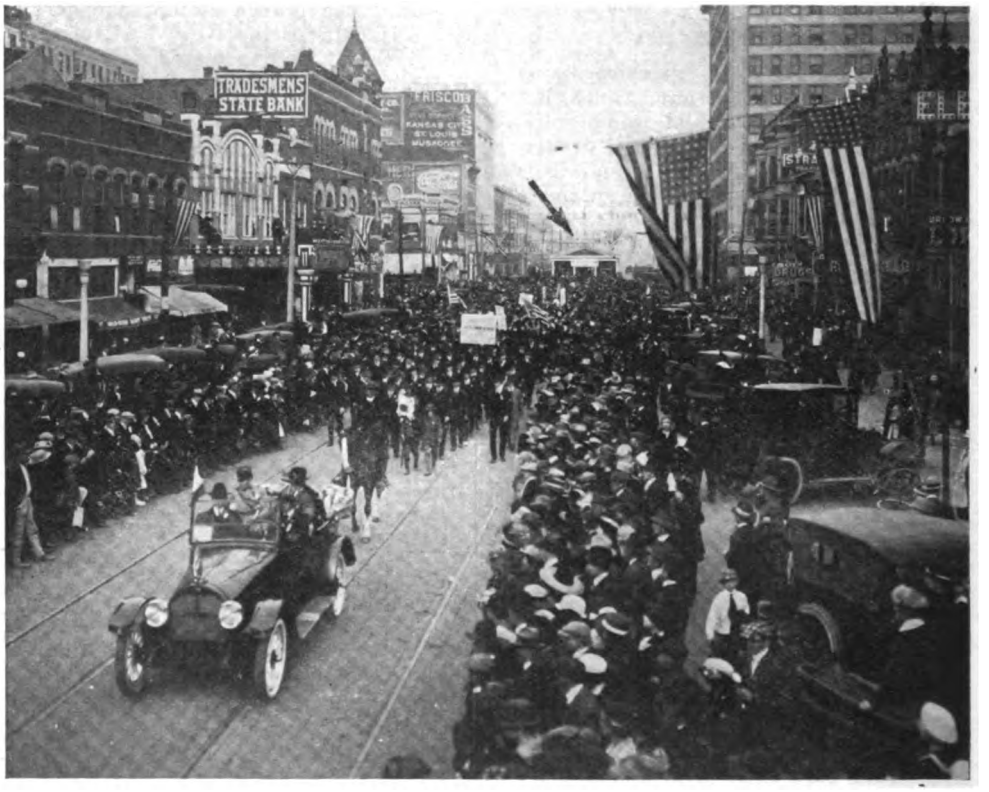
How about starting a contest like this yourself?

And, by the way, how many war savings stamps did YOU buy last week?

Motor Car Dealer Leads in Patriotic Work



"Dick" Carhart selling the first stamps sold in the W. S. S. Bank



The W. S. S. Bank, indicated in the background by the arrow, stands in the middle of the street at Broadway and Main Street, the busiest corner in Oklahoma City. Folks simply can't help know the W. S. S. goods are on sale

OKLAHOMA CITY, May 14—To an automobile man, E. Richard Carhart, president of the Carhart Motor Co., Oklahoma distributer for the Willys-Knight, belongs the credit for establishing the first war savings stamp bank building in the United States. The new bank building was dedicated in Oklahoma City on Monday, March 11, following the greatest parade Oklahoma City ever had, in which 12,000 persons took part. The bank building, located in the middle of Main Street, was Carhart's own idea, and through his committee $10,000 was raised in a few days to carry on the stamp campaign in this county. Everything that went into the bank was given free. A bell is on top of the building, and when a stamp is purchased it is rung. The building is at the intersection of Main Street and Broadway, the busiest corner in the city.

Carhart also was head of a committee a few weeks ago that raised $11,000 for the war camp recreation service fund, of which John N. Willys, president of Willys-Overland, Inc., was national chairman. Carhart's committee by hard and untiring work raised the money five days before the national campaign was started on its way, and for showing such speed was commended by the national organization.

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They Need $100,000,000



WE have all bought our Liberty Bonds and War Savings Stamps. This money has helped buy guns and ammunition and the machinery of war. But now the Red Cross, which takes care of our friends, brothers, and dear ones, is asking for money to take care of the soldier when he can't help himself. This money helps in many, many ways, and because of the way the Red Cross is managed, and the interest that is secured on funds deposited, $1.02 is spent for every dollar that you give. It is a time now not to invest or buy, but to GIVE. Can we afford not to be generous? Let's all give a handful. We KNOW it will bring joy and comfort—and maybe life—to some one, somewhere. The Red Cross campaign for $100,000,000 is on the week of May 20-27. Let's ALL give!

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A Wartime Business Creed

BE PREPARED!

EVERYBODY is wondering what is going to happen. There is talk of diminishing car production. There is speculation as to how many motor cars will be manufactured in the next six months. Everyone wonders what he should do. This page will give you a thought.

I—The General Situation

AUTOMOBILE production should continue until Aug. 1 or Oct. 1 about as it has been running. Manufacturers of cars long ago put in their stocks of steel for their fiscal years, most of which end about those dates. Parts stocks are also in fair shape for the rest of the 1917-18 year. In a few cases there is a shortage of a few parts, but it is not serious.

The railroad situation does not stand in the way so far as deliveries of cars are concerned, because dealers have accepted the drive-away idea and, when shipping is impossible, can drive the cars home. Shipping has, however, held up materials to some extent. Coal is not to-day a great problem.

The future is less definite. The government needs steel—and a lot of it. It may have to take all the steel there is and shut down the industry entirely. It also needs a surplus stock for shipbuilding next winter when the snow handicaps the railroads. It must get it now. Of course, the logical step would be to speed up the steel mills, the coal mines, the railroads and all the other "necks of the bottle," but since that seems to be a job that is going to require time and since the immediate need is for transportation and certain raw materials, such as steel, the important step is to supply materials—and that *may* mean reducing car production. Therefore, there is a *possibility* that car production after the middle of the summer may suffer a shrinkage.

So far as the prosperity of the country is concerned it is such as to make the demand for cars greater than the supply for months to come. Dealers need have no worry about selling all the cars they can get.

II—What May Happen

Production may be trimmed down to the point where all dealers may get few cars, or it may be pared only to where nearly all dealers will get considerable. It is difficult right now to predict the extent of the shift in production. Truck and tractor production is likely to be increased rather than decreased, as is that of accessories. The use of cars seems likely to continue as heretofore.

III—The Effects

In the case of the dealer who has depended on car sales alone his source of business is going to be taken away.

The dealer who carries cars merely as one of several departments is going to see that department shrink.

The dealer who hesitates to change his business simply because he is in the habit of doing business a certain old way is in a bad hole right now.

Every man must be figuring on the changes he can make that will tide his business over with as much profit as he can make, or, at least, without suffering a loss, until the present unsettled situation is terminated.

IV—Things to Do

The present situation may change for the worse so far as car selling is concerned—or it may not. There are certain things dealers can do that will help the situation if an adverse turn comes, and these same things will make the dealer stronger if nothing happens. Wherefore, change or no change, the dealer should BE PREPARED. Millions of our men are being hardened and tuned up by war training. Whether they meet the enemy or not they will be better men. Business requires this same war training.

1—Overhaul your business, no matter how big a dealer or distributor you may be. Learn all about your business. If you haven't been accounting as well as you should hire a bank clerk to come in evenings and get you the figures you need. Find out these things:

a. What departments are paying a profit?

b. What unprofitable or shaky departments can you build up?

c. If you can't build them up can you do without them?

d. How much volume must you do in each department to break even?

e. What expenses can you cut?

f. What volumes can you increase?

g. What overhead can you eliminate?

h. What waste can you detect and stop?

i. What departments have employees working at part capacity?

j. What departments can handle work or business in addition to what they are now handling?

k. How many men must you employ in different departments to make the output meet the overhead?

2—When you know how many cars you must have to effect an even break notify your factory and ask if you can't be given that many cars. But unless you KNOW your costs you can't intelligently ask the question.

3—Cut out waste.

4—Cut down your free service.

5—Trim your overhead.

6—Systematize your shop, stock and other departments.

7—Make money on used cars.

8—Get a truck agency.

9—Investigate the tractor question. Secure an agency.

10—Take a farm lighting system agency. These can be sold to farmers, cottage owners, home owners where electric light is inaccessible, small shop owners and many others. The farmer is not the only prospect.

11—Investigate the possibility of taking on additional kindred products which can be sold by you without any great alteration in your organization.

12—Get on a cash basis—a most important step.

13—If you are a small dealer in a small town or a garageman in any size of town get after repair work. If you have a good service station in which you have been doing mostly service work on your own cars get in some straight repair work on any line of cars.

14—Investigate the sale of accessories. Put in displays. Push these goods. Buy wisely. Don't over-stock. Keep the goods moving—at a profit.

15—Analyze your sales possibilities. See if there isn't somebody you can sell something to, a field or product you haven't touched yet.

16—Tune up your sales and promotion work. Make it better than ever. Work harder and see how high you can keep your business curve.

17—Don't relax! Don't lie down! Don't admit you are licked! Determine to push on just as fast and as far as you can go. Aim at a higher mark than your competitors expect to hit, and, above all,

STAY IN BUSINESS

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Make Two Cars Out of One

If the factory sends you 10 cars you can still have from 12 to 18 to sell. You can do it if you will make money on used cars

WITH car production trending down instead of up the dealer's problem is to get cars to sell. He can at this time make his former "used car problem" a profit yielder *if he will only take hold of it in the right way.*

Furthermore, he must take hold of it in this way or he is skating on thin ice. The type of dealer who can't make money on used cars this year is the type that is liable not to be here when the war ends, if—as now seems likely—it lasts for a couple of years more.

How good a dealer is can be determined by his ability at this time in meeting this used car situation.

Therefore, go ahead and trade—*sensibly.* If you get a chance to trade on eight sales out of 10 it means that you are handling 18 cars instead of 10. And if you make a profit on your used cars it means that you have had 18 cars to sell instead of 10.

Also, if you have been losing money on used cars and will now start to make money—a real 10 per cent net profit—on used cars you are practically tripling your profits. And that will be a *mighty big help these days,* won't it?

There are many of the biggest and supposedly best dealers in the United States who have for years maintained that the used car department could not be expected to show a profit. They have been content to break even or lose as little as possible—*all of which isn't very hot business tactics.* Can you imagine a pork packer selling the pig's hair at cost?

Here's What You Must Do to

Make Money on Used Cars

1—Secure a man who KNOWS used cars and let him have charge of your appraisal work. After you give him charge don't let the new car sales department over-ride his decisions. That has been one of the flaws in the business heretofore.

2—Trade whenever possible. The more used cars you can get the better, but don't let your supply get too far ahead of your demand.

3—When a car is presented for trading have the used car man check it over carefully. Find out exactly what it will cost to overhaul it and put it in shape.

4—Determine what the car will sell for. If there is a question as to this figure, cut it down. Play SAFE. Circumstances to-day are making it hard enough for you without your cheating yourself.

5—From this SALE PRICE deduct the overhaul cost.

6—Then deduct the salesman's commission.

7—Deduct 10 per cent profit.

8—Deduct the overhead. The overhead is determined by taking the fixed charges for the used-car department, such as rent, light, heat, manager's salary, etc., and dividing it by the average number of cars sold for a given period, such as one month.

9—Find in this way the allowance that will let you come through clean and STICK TO IT.

10—If you want to sell "as is" cars do so only in case the car is in very good condition. Or, sell them "as is" for the owner on commission, making the commission one that will show you a profit.

11—Remember this: Every time you take a car in the door it costs you money. The overhead at least is something you can't dodge.

12—Keep an accurate record of your trades and resales and KNOW how much you are making on each deal.

13—In case you run short of cars you can even buy used cars outright, fix them up and sell them. You can become a used-car dealer and make money at it *provided you operate along real business lines.*

14—Bear in mind: Your business is the sale of merchandise at a profit, so what difference does it make khere or how you get it? Trade, buy, sell on commission; do anything legitimate that will let your organization make money.

15—*And don't neglect to advertise.* The classified columns are fine for moving used cars.

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By 1922 He Hopes to Have

An Automobile Department Store

A. A. Peterson, of Los Angeles, Has Been at the Job Since 1915 and It Looks as Though He Would Make Good at It



Here is where Peterson is now. His front indicates a clean and honest business, and he makes the inside harmonize with the atmosphere of the outside



Accessories can be sold if they are displayed near the front of the building. This is the way Peterson does it. Note the neatness of the floor and the fixtures

By 1922 He Wants a 10-Story Building

First Floor—New cars, 3 or 4 makes. Offices.

Second Floor—Trucks and tractors.

Third Floor—Used cars.

Fourth Floor—Accessories. Tires. Vulcanizing.

Fifth Floor—Machine and repairshop. Welding, brazing, blacksmithing. Battery and ignition.

Sixth Floor—Body building, top making, upholstery, fender work.

Seventh Floor—Painting and enameling.

Eighth Floor—Automobile wrecking. Used accessories and parts.

Ninth Floor—Light manufacturing. Our own polishes, inventions, appliances. Mail order and catalog department.

Tenth Floor—Employees' floor. Cost-price restaurant, library, lecture and study rooms, hall for dancing and entertainments. House physician, dentist, physical development instructor.

Roof—Demonstrating course and athletic track. Center to be covered with awning and to include handball courts, wrestling mats, gymnasium and boxing apparatus.

First Basement—Lockers, lavatories, engine room, bowling alleys, billiard rooms. To be well ventilated.

Second Basement—Storage.

Third Basement—Swimming pool, shower baths, storage.

LOS ANGELES, May 12—In the summer of 1915 the real estate business in this city went to smash. From the most aggressive and best advertised line of endeavor in the city and one that had made dozens of men wealthy and hundreds comfortably well fixed, it rapidly became one in which there was said to be no money at all.

Development work and exploitation were abandoned and the for rent sign went up in many windows as each succeeding month brought the rent collector on his rounds and there was nobody to sign checks, because there was no bank balance.

A small army of realty salesmen were literally dumped out into the southern California sunshine that they had talked about so much in the hope of loosening

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some Easterner from the bank roll hid under his astrakan overcoat. There is nothing more sustaining about the sunshine of California than that of Iowa, and A. A. Peterson was one of the salesmen who soon found that fact out.

Peterson "looked around" for something to do. He had had experience in the advertising department of a railroad, and this had taught him that display advertising is a business barometer. The heavier the business the more advertising. For years he had been so accustomed to seeing columns and columns of real estate advertising and whole sections of newspapers devoted to this department that he thought the realty market the biggest thing in the country. But when it slumped his attention was attracted to the regularity with which automobile dealers were using printer's ink. A 10-in. double-column space was about the smallest "ad" to be seen, and from this up to full page and double-truck ran the scale.

"There must be something alive in the automobile business, so I guess I'll try for a job there," he concluded. "On the row" he found nearly all his realty acquaintances also seeking jobs as salesmen, and learned that few were obtaining berths. Then it was he made his big decision—he would go in the automobile business for himself, but select the used-car end of it. He had less than $400 in cash and realized he couldn't buy many cars with that, so chose a different plan.

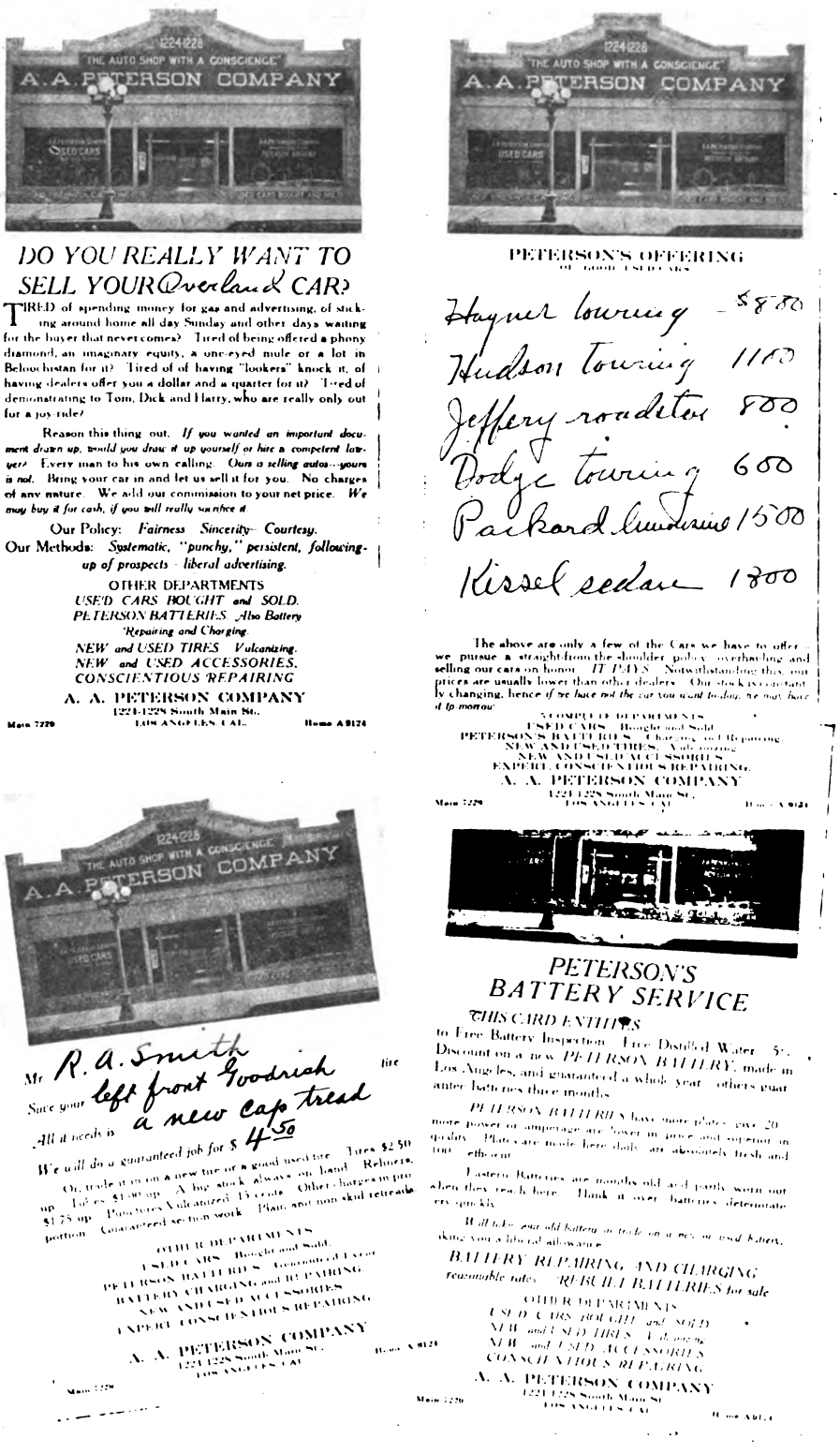
He paid $12.50 monthly rental for desk space in an office building. He clipped from newspapers the lists of used cars advertised for sale and also the ads of people seeking "second-hand" cars, and it became his mission to bring the two parties together. He went around and looked over listed cars, selected the best appearing and then scouted for someone he might interest as a purchaser.

The start was made in September, 1915. A few months later Peterson obtained free office room and the use of telephones in a garage by paying 10 cents per day for each car he stored there. He was now taking cars upon consignment from owners in the effort to sell them. Observation convinced him that the best location for a used-car salesroom was on South Main Street. He spent hours counting the number of street cars and motor vehicles which traversed that thoroughfare to estimate the number of people passing.

He rented the rear of a garage on that street and kept on hustling. Next he removed to a storeroom 20 ft. wide a few doors away. The room was so narrow it was necessary to run the cars out onto the street each morning so that they might be looked over and pack them away each night in a way that saved every inch of space. But he kept his stock of cars moving and saved his profits.

It was Peterson's determination that some day he should own a used-car department store. Now he does. He recently occupied a one-story brick structure in his favored location that has a lease value of $10,000 annually. There are 11,000 sq. ft. of floor and he cannot complain against the arrangement, because he drew the plans himself. He says it already has proved too small, though, and predicts that by 1922 it will require a ten-story structure to house his enterprises.

Peterson does not put all his eggs in one basket. He does not confine his work to selling used cars only. He buys and sells used parts and supplies. He does not crowd his showcases over against the wall out of the way of cars, but puts them on both sides of the main entrance so that he impresses every person who enters the place both coming and going. Of course, he would not try to sell used oils and greases, but he makes a point of buying his stock at a figure that will return a neat profit



These are a few of the postal card advertising pieces that Peterson uses to create business. The upper left card is sent to the owner of some car that is seen standing at the curb. The lower left card goes to some man whose tire is seen to need fixing. They all bring business

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The one big room is sub-divided by portable partitions and the repair, battery and vulcanizing departments all have their own quarters. Every car that this merchant takes in is overhauled and put in good shape before being offered for sale. He does not guarantee any car as being other than it appears, but assures the buyer that it is in good mechanical condition and ready for service.

Assembles Batteries

Peterson saw a chance to make money in the battery business, so he assembles batteries and sells them under his own name in competition with those of standard makes.

When the Motor World correspondent visited Peterson he saw on hand about $1,250 worth of used tires and tubes. Some had been rebuilt and all were repaired. Employees make a note of the license number of every car they see that needs better tires. The registration book gives the name of the car owner and Peterson sends him a card telling him that the tire needs a new cap tread and he will do a guaranteed job for $4.50.

The sale of a used car means the car only with standard equipment. Extras are not "thrown in," but Peterson has them aplenty. They have been used before, but their worth is not exhausted and the price is reasonable. An electric or mechanical horn, bumper, tire rack, spare tire or something else that motorists need nearly always goes with the car.

Profits For Employees

Including the proprietor and business inspiration, the Peterson force consists of eleven. Young men are employed, and there is only one connected with the place over 25 years of age. They are trained in the ways of the boss and their wages increase as the business grows and the length of time they have been with him. Only one man has been discharged. It is the intention of Peterson eventually to make his establishment cooperative and every employee share in the profits.

About Headlamps

Why must they be properly focussed?

Why is it so important that reflectors be true?

When is a lamp properly focussed?

What kind of light comes from a lamp improperly focussed?

Look on Page 38

Thousands of Cars Driven Away Weekly from This Garage

Dodge Brothers Maintains a Garage Solely as Starting Point for Dealer Drive-aways

DODGE Brothers has established a large garage solely as a starting point for drive-aways. It is in the western part of the city; thus the dealers avoid the congested part of the city, which they would necessarily be compelled to pass through were the garage situated at the plant. Being on the west side, it is an easy outlet to the main highways, all of which go west and south, where nearly all of Michigan's output must go.

The dealer coming for cars first first stops at the main plant, where he makes arrangements for the number of cars he wishes to take away and there pays for them. He is given a shipper's report and passes equal to the number of cars desired, which he takes to the drive-away garage to claim his cars.

Upon his arrival at the garage he hands in his report and passes and the cars are assigned to him. The number of the car is written on each pass and the latter is left with the car until it leaves the garage.

As the cars move out the passes are taken up and the numbers on them are compared with those on the cars. If they tally the dealer and his crew of drivers leave the building and proceed to a gas filling station just around the corner when the train is ready for its homeward journey.

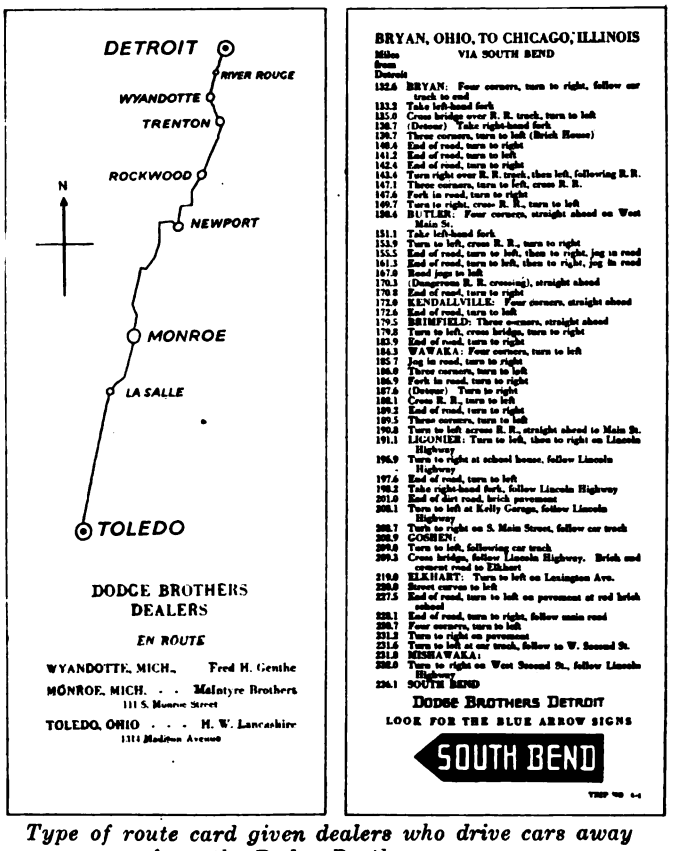
About everything that is necessary to equip a car for a drive-away is carried in stock at the garage—tires, chains, blow-out patches, spark plugs and anything the dealer may need on his trip. During the winter, cold weather supplies were sold to dealers at cost.

There are six men in charge of the garage, and they are kept busy practically all day taking care of the wants of dealers. There is a swarm of them there every day. Thousands of cars are driven away from this garage each week.

The building is one block long and 75 ft. wide, and will store approximately 100 cars. A continuous stream of cars pours into the garage all day and part of the night. The buliding is never filled during the day, however, as the cars are taken out by dealers nearly as fast as they come in. An opportunity to stock up the garage is given in the evening, when fewer cars leave. In the morning when the garage men arrive there is an ample stock to start the day with.

A space of about 50 x 70 ft. in the front part of the building is partitioned off and devoted to the office and waiting room. Two-thirds of this space serves for the latter. In the center of this room is a large furnace-like stove. On the walls are hung route maps. More than a dozen chairs are furnished to give comfort to the waiting drivers.

At one side is a show case displaying accessories to cars which the dealer may buy. To the left is a long shelf, on which can be found the necessary large rubber stamps and IN TRANSIT cards to make license tags if the dealer hasn't taken with him a sufficient number of official plates.



Type of route card given dealers who drive cars away from the Dodge Brothers garage

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Making the Tractor Prospect Believe Your Story

By W. A. Kirby

THE farmer is rooted in prejudice and habit. He by nature prefers the old to the new. To get the tractor story across this prejudice must be beaten down. And the salesman must exercise unusual care to see that the sales seed is rightly sown in that most delicate of fields—the farmer's mind. A slight misstep may mean the loss of many sales.

IS there a distinct difference between automobile or truck selling and tractor selling?

Only in a superficial way. Selling is inherently similar no matter along what line the efforts are directed.

And yet, everyone knows that selling is not always, if ever, accompanied by the identical probleems and methods among different commercial and industrial organizations.

It is as though selling were a priceless but extremely fragile material, always the same, but which requires a container suited to the places to which it is carried and conditioned by the other considerations which obtain in transporting a fragile or easily-destroyed material from one place to another; or to bring the simile down to reality, in carrying sales efforts to various divisions of our industrial life.

So it is then, that selling is always the same, but it must be contained in a carrier suitable to the region in which it is placed. The thing to consider in tractor selling, therefore, is the variety of container to use. And the greatest factor entering into the determination of that variety is, of course, the farmer.

In the East where the more conservative class of farmers are entrenched—the old-line men of the soil—the problems are multiplied. This is due to the great skepticism of the average farmer in connection with anything new.

When the gasoline tractor first appeared in the West it was necessary to demonstrate its practicability to the farmer. He was like the man from Missouri—had to be shown.

The First Thing to Do

This is still true of the Eastern farmer, to whom the tractor is coming as practically a new proposition. He must be shown just as his big brother of the West. *This is the first thing to do in preparing a sales campaign. Have a number of demonstrations at points in the territory which are easily accessible to the greatest numbers of farmers. And hold them in a period of the season when the farmer has time to attend.*

During the demonstration the farmer has an opportunity to see and observe the tractor working as it was claimed to work and to be convinced that it is practical. There can be given no more conclusive proof than this. But the demonstrator must be careful to *get the right slant on the attitude the farmer takes even during the demonstration.*

Attending a small local demonstration in the East was a typical small farmer. The land being plowed was sandy and when the plowshares were turning over 7 in. of earth the lower layer was found to be unseasoned and decidedly sandy.

"Daut is no good," commented the farmer with characteristic finality. "I would never plow daut deep. That earth is no good (picking up a handful and rubbing it). It should not plow so deep," and he shook his head dubiously without thinking that the tractor and plow could be adjusted to plow to any depth from nothing to the full power of the tractor's pull.

Make First Impression Right

That farmer became prejudiced against that tractor immediately, and it is no idle assertion to say that before he became finally convinced of the tractor's value much arguing and expostulation was necessary. This may seem like an extreme case, but it is not. There is a tendency on the part of many farmers, especially in the East, to be dogmatic in *sticking to first impressions.*

Distribute Literature

The distribution of some literature during the demonstration is valuable practice because it gives all the spectators an opportunity to learn the different points in the tractor's construction as they occur to them.

The farmer does not, as a rule, go through a catalog systematically to become acquainted with the details of a tractor. Like a sudden spark shooting upward comes to him the thought, *"I wonder what kind of engine that tractor has."* If he has a circular with the specifications in his hands he will consult it, learn the make of the engine, remember it and feel satisfied. *His interest will also be quickened.*

Use Follow-Up Letters

Following the demonstration, in a few days, it would be advisable to send out a live, convincing form letter with some testimonials enclosed, preferably from men well known in the locality who own tractors. Farmers view life to a great extent on a community basis. The best recommendation, therefore, that a machine can have is that Sam Jones has one or that Hank Smith just ordered one.

An important phase of tractor selling, at least until the tractor becomes numerically well established, is to *keep tractor, tractor, tractor, constantly before the farmer.*

Never let him lose thought of it. Form letters are perhaps the best medium through which to keep in contact with prospects and to keep them in constant thought of the tractor.

One type of letter upon which others may be modeled follows:

Dear Sir:

You are facing serious labor problems; you need something that will do more work with less help. The Model tractor is ready to serve you.

It is guaranteed to pull 3 plows 7 in. deep under ordinary conditions, and has a belt pulley that will drive all your power equipment, including a dynamo

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for lighting and heating, a separator, butter churn, saw mill, etc.

You cannot be fair to yourself and to your interests if you ignore the advantages of tractor farming. And the price of this tractor is only $700.

Another thing, we have plenty of spare parts so that there will be no delay in making repairs.

Your horses are the most expensive power plants you could use. The tractor gives more and cheaper power and is more reliable. It can be depended upon at all times and in all weathers. You need it—and every live farmer needs it and should have it.

We are here to assist you in your work, so do not hesitate to call on us. Why not drop in and discuss the proposition with us? We will then be able to go more into detail and clear up any doubtful points.

In the interests of the farmer, we are,

Very truly yours.

P. S.—We are inclosing several letters of testimony from men you know who are using our tractor. They may interest you.

The above letter is only a sample and should be varied in a number of ways especially to suit the type of farmer to which it is to be sent. It does not do to make a letter of this kind too long. *Short, spicy messages are best*—ones that set the farmer to thinking and arouse a feeling of dissatisfaction with existing conditions. *Create a desire for something better by convincing him that what he has is no longer up-to-date.*

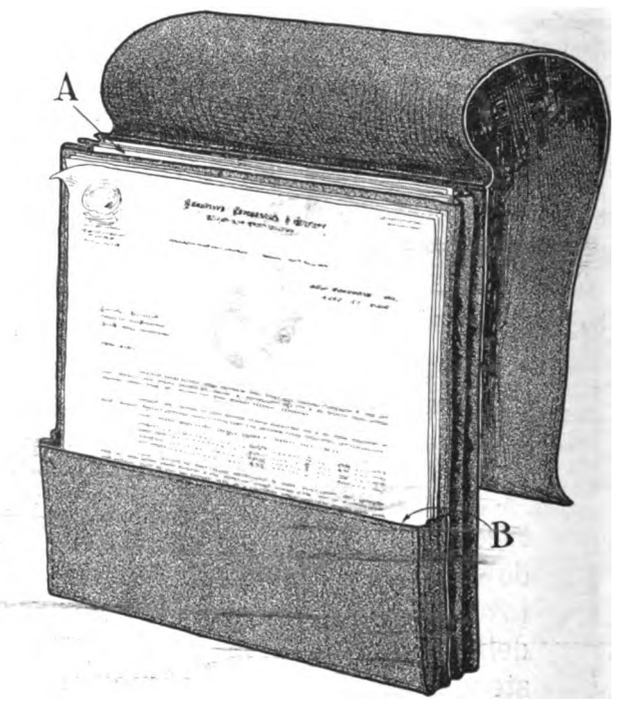
A pertinent warning might here be sounded concerning the claims that are made by tractor salesmen in regard to the ability of the tractor in question and the range of work it is capable of doing. Everyone knows that the tractor is not a perfect machine in its present state of development, and that it is just as prone to the effects of wear and tear and to the destructive effects of overloading and insufficient care as is any other mechanical agent. *No salesman should claim more for the tractor than it has been proved to be able to do under tests.*

Make Truthful Claims

There is nothing that will so quickly kill a possible market as to make air-castle claims which time and experience quickly refute. The farmer must be shown at the time he acquires a tractor that some troubles are to be expected, and he should also know just what can be expected of his tractor and no more.

Now, if the farmer responds to the first form letter sent out it is then up to the dealer to carry his interest along in the proper way until he buys. There are innumerable arguments that can be used at this time. These, however, should not be advanced without prudence. *They must be seasoned with human-interest stories of what other farmers have accomplished with tractors.*

Should the first letter produce no fruit it must be followed by others. In these care must be taken to make the reading as new as possible. Avoid reiteration. In these follow-up letters some of the points for which there was not sufficient space in the initial letter can be put in. Maintain a friendly, confidential tone in the letters, for this appeals more to the farmer than to the cold, calculating industrial man. For instance, the second letter, which can be sent about 10 days after the first, might be worded in this way:



EVIDENCE FOLDER FOR TRUCK AND TRACTOR SALESMEN—Made of imitation leather or some other flexible material. There are two envelopes, A and B. A is a deep envelope. B is an envelope with a half or third face, as shown. Testimonial letters, blueprints, advertising matter and anything to be used in selling is carried in compartment A. In case the prospect to be called on next is a coal dealer, compartment B is filled with only such material as will be used on the coal man. If the next call after the coal man is on a farmer B is filled with only farm material and all the rest of the data are kept out of sight in compartment A, where the prospect can't see it. This provides a specialized folder for each call and still enables the salesman to have complete data with him at all times

Second Follow-Up Letter

Dear Sir:

We presume that the work on your farm prevented you from giving our recent letter the attention it might otherwise have received. We want, however, to keep before you the opportunities which the tractor offers.

These may not be apparent to you at first thought, but we are sure that after a little investigation you will become an enthusiastic tractor owner and advocate.

We are inclosing several leaflets in which some important questions are discussed. These questions are of vital importance at present and are well worth careful perusal. The data were gathered by an expert implement and tractor man who canvassed a large number of our country's farmers.

Perhaps you would like to have one of our men call and go over your requirements with you. If so, just 'phone Main 293 or drop us a postal. We shall be pleased to serve you in whatever capacity lies in our power. We again suggest that you give the inclosed leaflets careful consideration.

Yours very truly.

It will be observed that this form of letter is distinctly a follow-up type. It is Act II in a two-act play, as it were. The inclosures mentioned can be prepared from figures which may be obtained from any large tractor manufacturer.

Comparisons between horse and tractor efficiency and reliability are interesting and instructive. Figures on the work the tractor has done with some cost data are very valuable as arguments. Any records of unique or extraordinary work bear out the tractors' versatility. The data should be in harmony with the character of the crops raised in the district, however. It would obviously be useless to go into detail concerning the success of the tractor in the great wheat fields if the immediate district in which the dealer is distributing is in the corn belt.

Much of the literature prepared by the manufacturers is suitable for this use without much change. Other data can be rearranged for proper presentation.

Another method by which the farmer may be converted to tractorism but which means a greater outlay in time and money is to take the tractor around to the farm of each prospect and run it through a number of operations with the farmer; *a sort of individual demonstration.*

This will make a much more convincing argument in the eyes of the farmer and impress him as no systematic public affair would. It also creates a closer contact between the dealer and the farmer so that further dealings are facilitated. It is not necessary to do any considerable amount of work; in fact, that is inadvisable. Do just enough to demonstrate the utility of the tractor and no more. *If the farmer is anxious to have more work done by the tractor he admits that it works satisfactorily and is worth acquiring.*

Personal contact with the prospect is a very valuable asset.

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Making Mechanics By Magic



By Ray W. Sherman

"REILLY," announced Williams the service manager, "we're short of men."

"The idea!" declared the Sennett dealer. "How can that be? I thought there was a line of men out there every morning begging for work."

"There was—once. But quit your kidding. I haven't seen an unemployed mechanic in so long that I wouldn't recognize one if I saw him. We have been more or less short of men for a long time, but now it's getting serious. Two of the men left last night for the shipyards and two more go in the draft next week. If they keep on the kid and myself will be working with both hands and both feet and running all the machinery with our eyebrows."

"Well—why not!" Reilly seemed to have a thought.

"Why not what?"

"Let the kid run some of the machinery."

"That kid!" Williams evidently didn't admire his shop boy very much.

"Got two hands, hasn't he? Got two eyes, hasn't he? Not crippled, is he? Sure! Why not let him do some real work?" Reilly meant it.

"He couldn't do real mechanic's work," scoffed the service manager. "He isn't skilled enough. He—"

"I know all about that, Williams, but let's look this situation in the face. We've got to get the work done or shut up shop. We have been down to the danger line for some time. My figures tell me that unless we have eight men at work in the shop the shop is likely to lose money. With four men going that leaves us only six. We've got to have more production. I'll take care of filling the shop if you'll get the men and keep the work coming through.

"Now—what have you got out there in the way of men? How many old men who are outside the draft age? How many really good men who you think will stick?"

"I have three birds and two helpers and the kid. That's all," counted Williams.

"Well," figured Reilly, "if we can't get skilled men we can't. There's no use speculating as to where we can hire top-notch men because they are not to be had. Let's forget that part of it.

"Anyway, what we want is skill and the ability to turn out work, not men. If we could hire Newfoundland pups who had the skill and could turn out the work we could hire the pups, so let's see if we can't find the skill without the men. We've GOT to do something—and do it darned sudden.

"A big percentage of the shop work is NOT skilled. Only a small percentage requires a skilled man, but because part of a job is skilled we put a skilled man on to do the whole job from start to finish, whereas much of the job could be done by a helper or man of minor skill.

"Take, for instance, such a job as taking up the connecting rod bearings. We probably have called that a skilled job—and it is. But the skilled part comes mostly in the taking up part. As a starter the under-pan has to be taken off. An unskilled man can do that. Then you take off the caps and remove the shims. An unskilled man can do that, provided he gets a little instruction from the skilled man.

"He must be taught to remove the caps and shims and place the caps, shims and bolts in rows so that the skilled man can tell just where every part came from. Then comes the skilled man's part. He does the fitting. This may take 40 or 50 per cent of the time of the whole job. After the fitting is done the unskilled man can put the pan back and clean up the job.

"And we have been making some of our parts because we considered the factory prices high. We have been turning up some of the rear axle shafts. If we buy these from the factory the price is a little higher than we can turn them out for, but it will save a lot of labor to buy them. Or, we might be able to let an unskilled or semi-skilled man do much of this work provided the skilled man kept an eye on him and took care of the finishing.

"Furthermore, Williams, you must remember that we must be all the time teaching these unskilled men to do skilled work. We must MAKE mechanics. There is no other way to get them. Whenever you get a chance let the skilled man—or yourself—teach the unskilled man how to do certain things. Shove him along fast, just the same as some teachers shove kids along in school. Of course, the unskilled man won't become an A-1 mechanic, but he will get so he can do 90 per cent of the skilled jobs we have in the shop.

"For instance, if you have a lot of lathe work teach an unskilled man to run the lathe, and let him do as much of the lathe work as he can. So far as the lathe is concerned this man will be equal to the skilled man, but, of course, he won't be an all-around skilled man. But what we want is some way to get our work turned out. We are not so much interested in having ten or fifteen skilled men as we are in having ten or fifteen men who can keep our shop going.

"And, again, take our cleaning and janitor work. We have had this done by men. We can use able-bodied women on this work just as well as not, and they probably will be glad to get the work. It won't be hard for them. They can clean the building and the shop, wash and polish cars, paint tires, clean motors perhaps, and with a few labor-saving appliances to reduce the muscular exertion and strain, and with the supervision of a skilled man, you might even teach a bright woman to do all our vulcanizing.

"The tire shops are having trouble getting vulcanizers, so if we can turn this work over to women we can bring to our shop a lot of the tire work that has been going to the regular tire shops. It will help increase our volume."

"I don't know about hiring these women—" began Williams.

"Why not?"

"Nobody's doing it," asserted Williams.

"Never mind what 'nobody's doing,'" Reilly declared. "Our problem is to keep from doing what the rest are doing, and that is running with a half-equipped and money-losing shop. We've got to do something, so let's give it a try. If you, the boss of the job, can sell yourself on the idea I KNOW we can make it work."

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Remy Governor Generator for Tractors

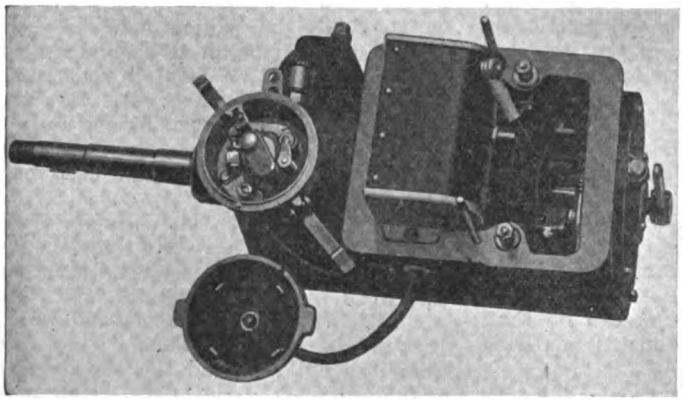
New Lighting and Starting Equipment Combined with Controller for Engine

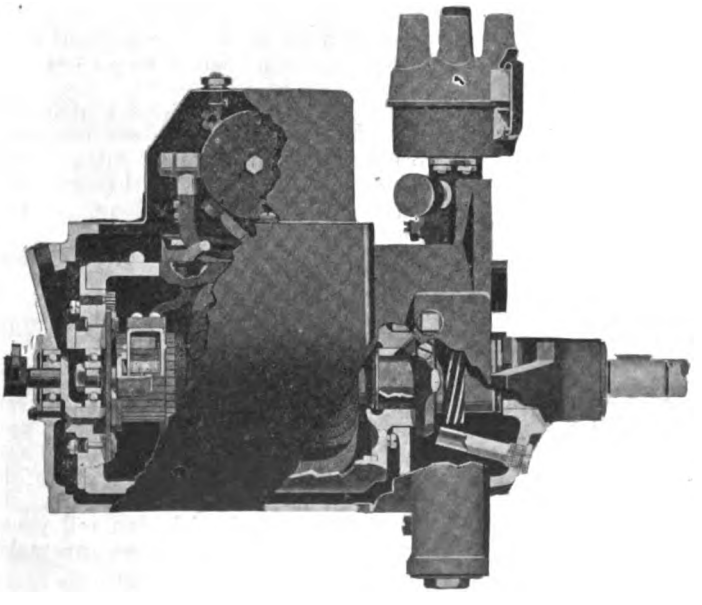
THE Remy Electric Co. of Anderson, Ind., has brought out a starting and lighting system for the Moline Plow Co.'s tractors, in which the generator acts also as an engine governor. In view of the necessity of getting work done quickly at certain seasons of the year, night work is necessary. The starting and lighting system is intended to permit night operation of the tractor, as well as to provide for the likely contingency of tractors being operated by women and youths who would not be physically able to perform the arduous labor of cranking the engine.

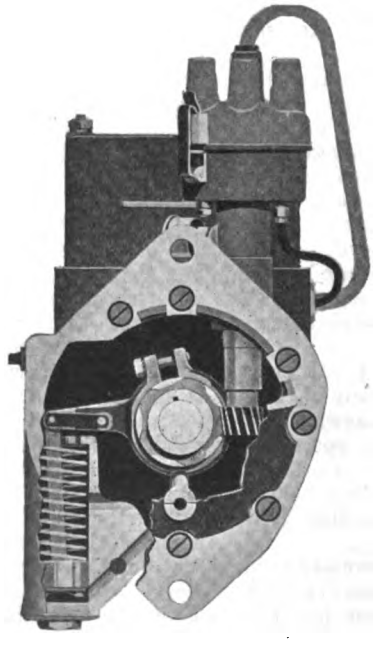
The Remy company believes that, since it is necessary to employ a generator, this generator may well be used for governing the engine speed, especially because it can be so arranged as to provide settings for the various kinds of work and the various loads found in farm practice. The principle on which the governor acts may be explained as follows:

Any rotating apparatus which absorbs power must have at least two members, one rotating, the other stationary, and the absorption of power is due to reaction between these two. In order that the apparatus may absorb power, it is necessary by some means to resist a turning action on the stationary member. This resistance to turning action may be provided either by rigidly supporting the stationary member, or by opposing its rotative tendency by some flexible means such as a spring.

An electric generator is an apparatus which absorbs mechanical energy and changes a large proportion of it into electrical energy. The two essential members of an electric generator are the rotating part—the armature—and the stationary part—the field. The reaction between the rotating armature and the stationary field is due to the magnetism of the field and the current in the armature coils. At a given armature speed the tendency to turn on the part of the stationary field depends entirely upon the amount of mechanical energy absorbed, which in turn depends upon the amount of electrical energy produced. Therefore, by varying the amount of electrical energy produced we can vary either the resistance to turning or the speed at which this resistance will be realized.







The upper picture shows the Remy generator and ignition unit design for tractor use. The lower one is a cutaway view showing the construction of the Remy unit

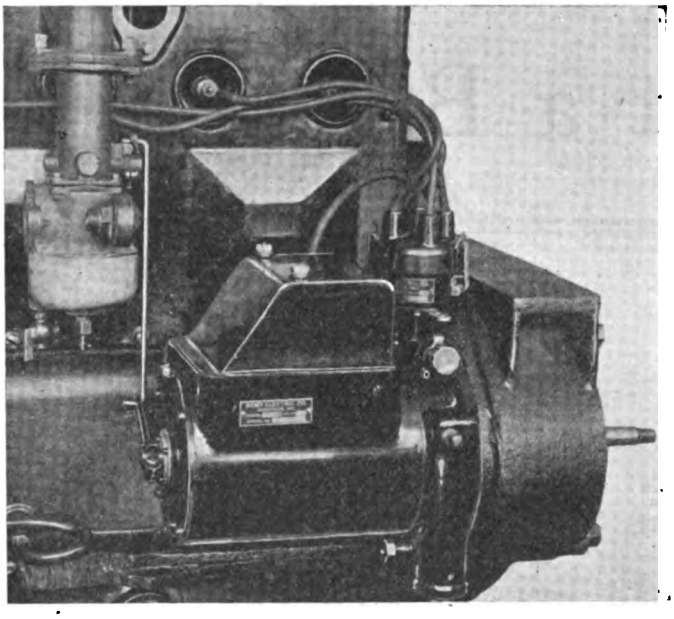
Governor Principle

In the Moline plow equipment this principle is utilized by having the stationary or field magnet member rotatably supported, and the tendency to rotation resisted by a spring of predetermined pressure. The field magnet remains in its normal position until the speed of rotation has become such that the amount of magnetism in that field, interacting with the armature ampere-turns, creates a rotative tendency sufficient to overcome the pressure of the spring, and then the field magnet starts to rotate in the same direction as the armature. This frame is so connected to the carbureter throttle that any angular motion in the same direction as the armature closes the throttle and thereby decreases the amount of power which the engine can produce.

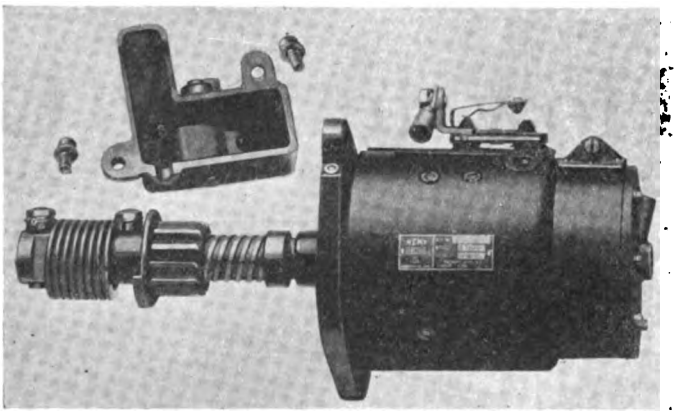
If a different engine speed is desired, it is necessary to change the magnetic strength of the field, and this is done by inserting resistance in the field circuit or cutting it out. With increased resistance in the field circuit the magnetic strength of the field at a given armature speed is less, so that the spring will cause a retrograde movement of the field magnet, thereby admitting more fuel to the engine and increasing its speed. On the other hand, with reduced resistance in the field circuit the field will be stronger at a given armature speed and close the throttle against the force of the spring.

This increase or decrease in resistance in the field circuit is accomplished by an adjustable rheostat. Rheostat and generator are of such di-

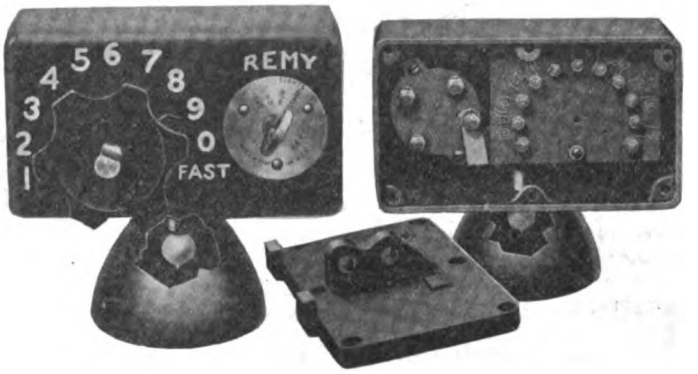
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Above—Remy ignition switch and control unit mounted on a tractor in accessible position



Remy starting motor for tractor installation with starting switch cover removed



Front and rear views of the lighting and ignition switch with control box

mensions that with the rheostat resistance entirely eliminated from the field circuit the spring pressure will be balanced by the field rotative tendency at about 500 r.p.m. of the engine, and with all of the resistance of the adjustable rheostat included in the field circuit the pressure of the spring will balance the rotative tendency of the field magnet at about 1500 r.p.m.

Generator Shunt-Wound

The generator is a simple shunt-wound type. A ⅜-in. extension is brought out through the generator case or housing, to which a lever is attached. This lever, in turn, is connected by a simple link to the carbureter lever.

The spring shown in the dashpot cylinder is so arranged that the generator body is forced around by it in the direction opposite to that of armature rotation, which is clockwise (when looking at the drive end), and the connection of the lever to the throttle is so made that the throttle is open when at rest, and the spring has rotated to the generator body on its trunnion bearing to this position.

When the engine is started and the generator commences to generate current, there is a magnetic drag on the field, and at a generator speed of 600 r.p.m. this is sufficient to overcome the spring, causing the generator body to rotate in the same direction as the armature, i. e , in a clockwise direction, and to throw the throttle sufficiently to maintain this predetermined speed. There is a minimum speed regulation of 600 generator r.p.m., for it is supposed that the generator will be driven at one and one-half times engine speed; therefore, the low governing speed is 400 engine r.p.m. Any higher speed can be secured by merely inserting resistance in the field circuit by means of the adjustable rheostat.

Voltage Varies With Speed

If, on account of an increased load, the engine slows down slightly, the voltage and magnetic drag decrease, and the spring opens the throttle, maintaining the desired governed speed. If the load is reduced and the engine speeds up a few revolutions per minute there is an increase in the voltage and current output, and a resultant increase in magnetic drag; therefore, the spring is overcome by the magnetic drag and the throttle is closed. The current output is automatically controlled and therefore is approximately 6 amp. at all operating speeds. One and one-half amperes are utilized for ignition, while 4½ amp. are continually going into the battery.

The starting switch is mounted on top of the motor and is provided with tunnels to take the end of ½-in. steel conduit through which the starter cable is run. The starting switch is of the lever and shaft type.

The generator is inclosed in a cast iron case, leaving a large inspection hole or hatch open at the top, which is provided with a pressed steel cover with extremely wide flanges and drawn down by two bolts centrally located, thus assuring a dust and water tight joint with the generator case. In the ignition distributor the principles of the Remy battery ignition design have been closely followed out.

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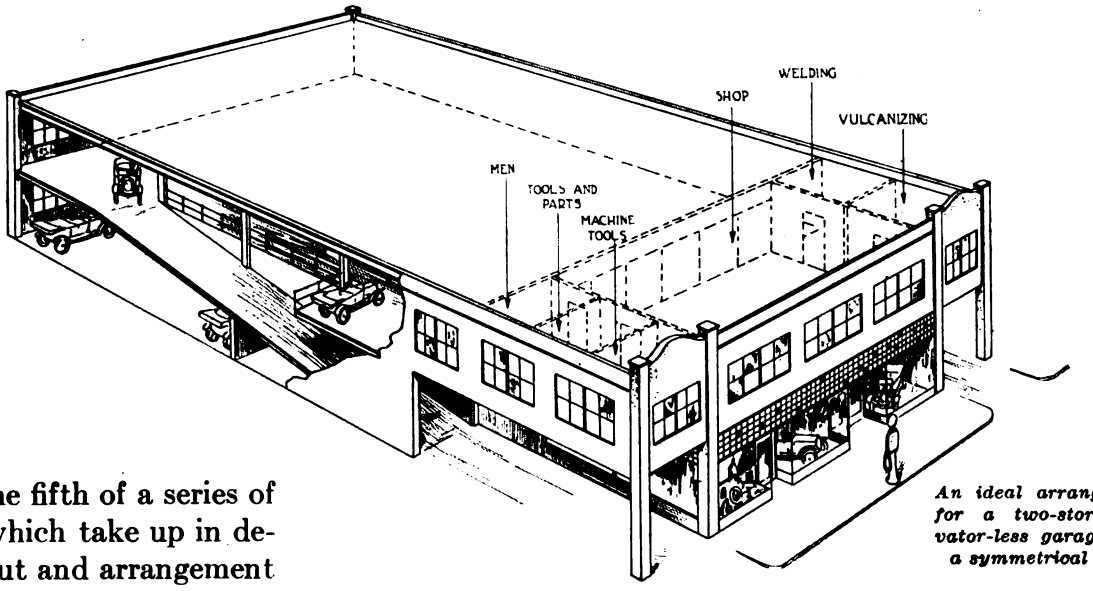
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How to Lay Out a Building—5



An ideal arrangement for a two-story elevator-less garage with a symmetrical front

THIS is the fifth of a series of articles which take up in detail the layout and arrangement of buildings for the dealer, garage and repairshop.—Editor.

By Harold F. Blanchard

Plan No. 4

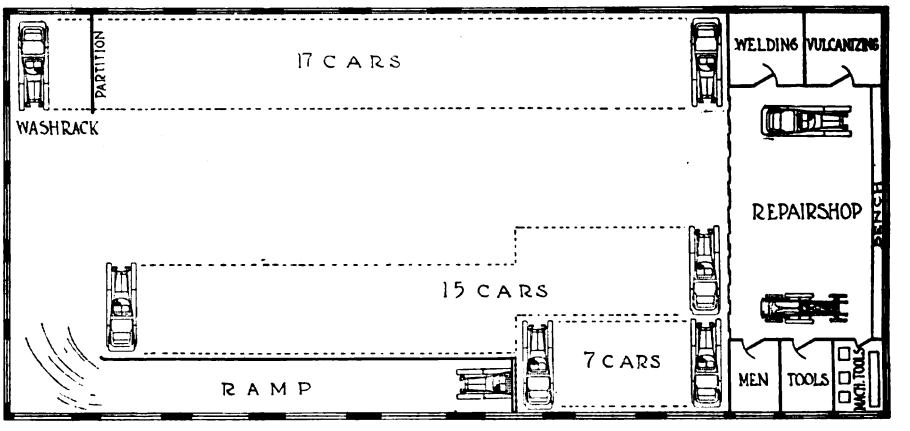
SPECIFICATIONS: Plot, 70 x 150 ft.; two story building with ramp; showroom for four cars; store; rest room; private office; garage for 70 cars; shop for five cars; two specialty rooms and machine tool room.

A PLOT 60 or 70 ft. wide and 100 ft. or more long is an ideal one for a two-story building with a ramp, and perhaps for this reason it is very common to use a ramp in such a case, Figs. 16 and 17.

It is wrong, however, to draw the conclusion from this that a ramp is not suited to most plots. The contrary is the case. A ramp may be used on most plots more than 55 ft. wide, but, as pointed out at the outset, in order to conserve space it is necessary to fit the ramp to the plan, therefore this is the only standard plan shown with a ramp.

In general the showroom and accessory store are similar to those already shown and are interchangeable with them.

Fig. 18 shows the ground floor plan for the same building when the plot is on a corner. The rooms in the show-



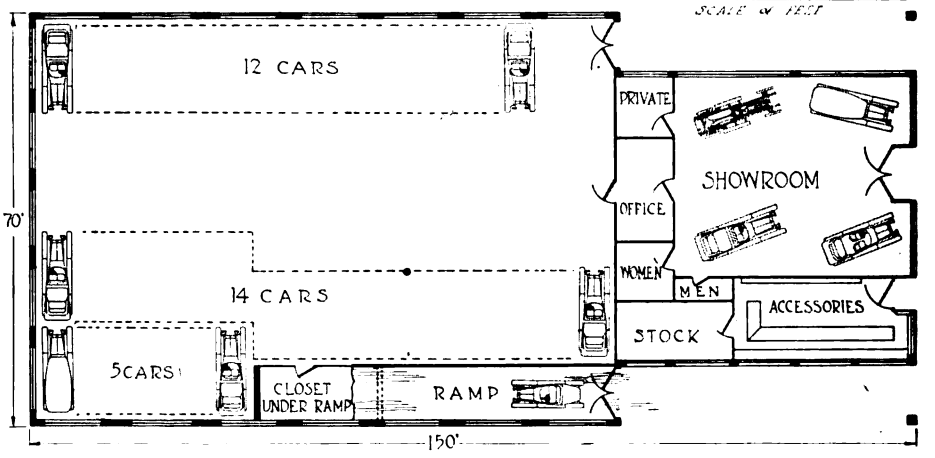


Fig. 16, upper, and Fig. 17—For a plot 60 or 70 ft. wide and 100 ft. or more deep, a ramp may be used to good advantage. In fact, a ramp generally may be used if the plot measures more than 55 ft., but the ramp must be fitted to the plan

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room unit are only slightly larger than in Fig. 16 because the unit is somewhat shallower. The second floor plan is the same as Fig. 17.

Plan No. 5

SPECIFICATIONS: Plot, 100 x 125; showroom for four cars; accessory store; large shop with three specialty rooms; garage for forty-nine cars.

THE showroom unit in this plan, Fig. 19, is the same as in Fig. 16.

Mainly for the sake of a symmetrical layout the showroom unit is placed in the center, thus making it necessary to use up the space at either side with a row of small cars and a rather narrow aisle.

The minimum width for the strip at each side is about 25 ft., and since the total frontage is 100 ft. the difference, or 50 ft., is the amount available for the showroom unit.

The shop is much larger than any shown so far, holding eight to ten cars. The tool and parts room has been placed in the center so that the distance a workman has to travel from any car on the shop floor to it is a minimum.

Shop Centrally Located

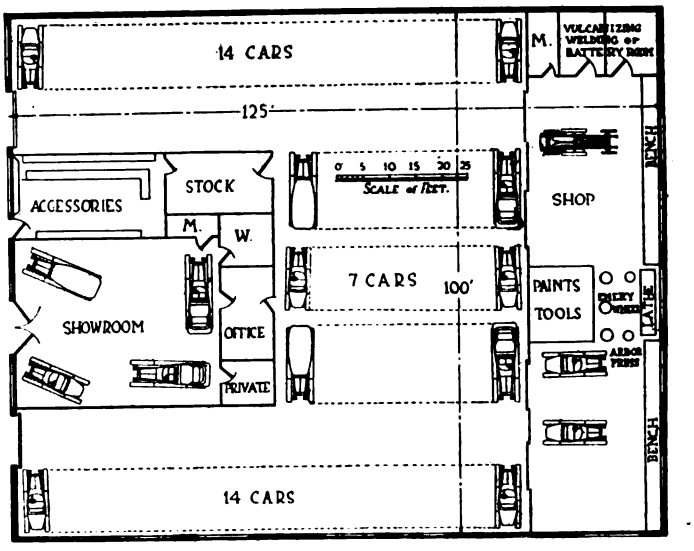
For the same reason and also because it makes a neat layout, the machine tool room has also been centrally placed. This position is most convenient for machinists inasmuch as it is only a step to the tool room. The tool equipment consists of lathe, drill press, emery wheel and arbor press. The lathe is located along the window, where the light is best.

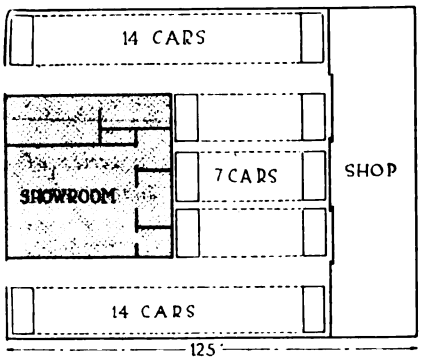
There are two specialty rooms and a lavatory included in the design.

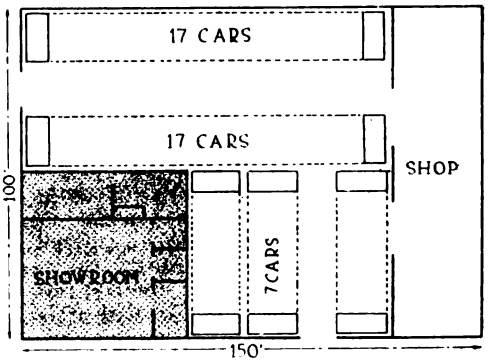
An alternative method of arranging the cars in the garage is shown in Fig. 20.

The same plan revised for a corner plot is shown in Fig. 21. Showroom and shop unit are unchanged, but naturally the arrangement of cars in the garage is different. This plan permits both a side and a front entrance, although when all the car spaces are filled it is not possible to drive from one door to the other. This is of practically no importance, however.

Fig. 19, Right, and Figs. 20 and 21, Below — These are three alternative arrangements for a plot 100 x 125, the upper plan showing the salesroom in the center with garage space at the sides. Fig. 20 shows a slightly different method of arranging the cars in the garage, and Fig. 21 shows the plan adapted for a corner location







Ohio's Distribution of Fordsons

DEARBORN, MICH., May 8—The plan of the Bryant Tractor Co., Columbus, in distributing Fordson tractors in the State of Ohio is to enlist the services of patriotic citizens and automobile dealers, of whom the latter are mostly Ford agents, and ask them to finance a carload each in their respective communities. Tractors cannot be shipped in less than car lots of seven, and the dealer taking and financing this quantity speeds up the delivery quite considerably. The orders being sent direct to the distributor from farmers usually average one, two or three to a community. The dealers also take a few Fordson service parts besides the selected stock, amounting to $200, which is included with the tractor, so they may give the proper kind of service to the farmers of their community. The responsibility and expense of unloading is assumed by the Ford dealers, but is charged back to the user, on delivery. This amounts to $15 per tractor, including freight. Since the recent demonstration the Bryant Company gave in Columbus it has received cash and certified checks covering better than fifty carloads of tractors. Along with this the company has a record of checks in the mail, or soon to be in the mail, for fifteen more carloads. This makes a total of about $400,000 worth of business covering tractors, plows, parts, etc., in little over 2 weeks. One remarkable feature about this is that practically all this business has been secured without the buyer ever having seen the tractor.

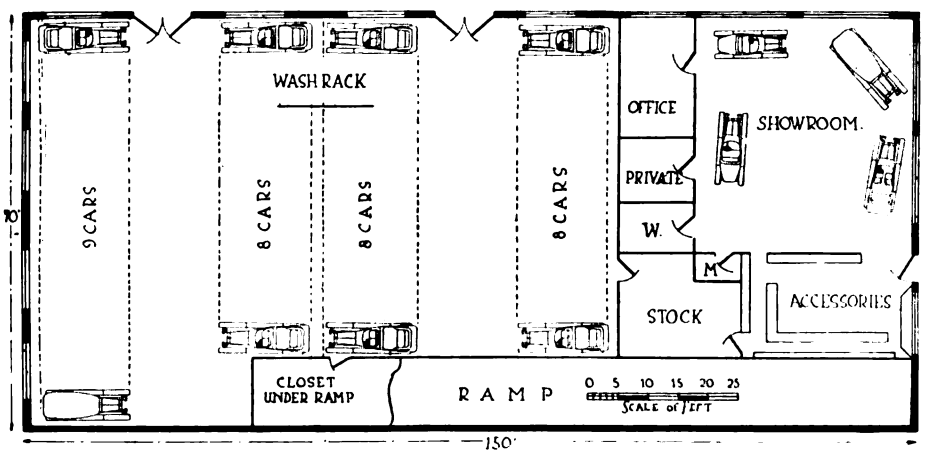


Fig. 18—This shows one method of arranging the cars in a garage which has a ramp running along the side of the building

Dort Has New Model

FLINT, May 8—A new model Dort Fleur-de-Lys roadster will make its appearance on May 15. It will sell for $865, with $60 extra for wire wheels. It is a three-passenger car of the Clover leaf type, with divided front seats and a divan in the rear. Lines of the new model vary considerably from the preceding model. A change is noted in the sill curve at the rear. The divan is wider, and there is more leg room. The standard paint is gray body, hood and wheels, with a white stripe just below the sill. Fenders and radiator are black. Car will carry a mohair top. Body will be mounted on Model 11 chassis, with the new 3½ x 5 motor, and the same other refinements brought out in the touring-car chassis introduced last January.

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A Department of

BETTER MECHANICS

No. 67

Simple Electrical Testing—3

Testing Bench for Starting and Lighting Systems

IT is possible to make a rough test on a starting motor or a generator by belting it up in an ordinary engine lathe and roughly determining its operation. However, when any amount of electrical testing is required, a special testing stand fitted with accurate instruments should be installed; for by this alone can an instrument be tested after repair, and installed with the certainty that it will function properly.

The testing stand is divided into two parts, that for testing the generator and that for testing the starting motor. Roughly the generator test consists simply of driving the generator at varying speeds by a small motor and determining its operation under these conditions. The system used in the automobile is duplicated, and by comparing the performance with the performance of a generator known to be in good condition, the condition of the generator being tested is determined.

Likewise the conditions in the car are duplicated in the starting motor test. The starting motor is connected with a storage battery and a variable load applied, its effect upon the speed and power being compared likewise with a starting motor in good condition. Its condition is thus determined.

The layout of the testing stand is shown in Fig. 2. The instruments are mounted on a heavy wooden table that is about 30 in. high, 30 in. wide and 5 ft. long. This table is securely bolted together and to the floor so that the parts will not be subject to vibration or motion. The generator testing equipment is mounted at the left end of this bench and the starting motor equipment at the right end.

Taking first the generator testing equipment, it will be noted that the generator is clamped to a hinged table and driven by a one-half horsepower variable speed motor.

The purpose of the hinged table is to permit the belt to be adjusted as required by various starting motors and special pulleys for belting to the armature shaft. These are essential in those cases where the usual gear cannot be used as a pulley.

THIS is the last of a series of three articles on simple electrical testing. The articles have been written with a view to assisting the garageman and repairman to a better understanding of the electrical equipment of the modern car so that he can be of greater service to his customers. Save all the articles for future reference.—EDITOR.

As stated, the one-half horsepower motor should be of the variable speed type, this being effected by a rheostat mounted at the front of the bench. By this the speed of the starting motor may be controlled between 600 to 1800 r.p.m.

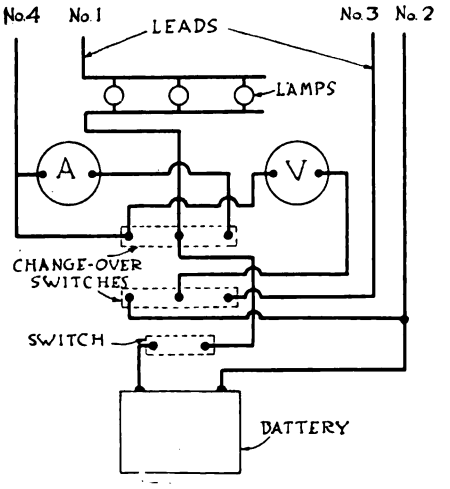


Fig. 1—Diagram of the wiring for the test board shown on the opposite page

The various instruments used in the generator test are mounted on an instrument board on the rear of the bench. The material used in the instrument board may be wood if desired, though hard asbestos board is much better; inasmuch as the voltages low perfect insulation is not absolutely essential.

Mounted on this board are three 15 cp. lamps connected in line with the battery circuit and the generator. The two instruments required are a 15-volt scale voltmeter and a 25-ampere scale ammeter reading both to the right and left of the zero mark. The additional equipment required comprises two 15-ampere double-throw switches and one 15-ampere single-throw switch together with a revolution counter, permitting the speed of the generator to be ascertained.

The connection of the various instruments and equipment is shown in Fig. 1. It will be noted that a 6-volt storage battery is connected into the circuit and that the four leads are brought to a point at the rear of the bench in much the manner of telephone switchboard extension plugs. The detail of each of these wire extensions is shown in Fig. 2, and it will be noted that whenever a wire is removed from its binding post it is automatically drawn back into position. This prevents the possibility of accidental short circuits and keeps the wire leads where they can be found in an instant. The wiring should be either No. 8 or No. 10 flexible cable.

Turning now to the starting motor test equipment, it will be noted that this is simpler than that used in testing generators. A steel plate or base is bolted to the bench forming the ground connection of the motor similar to the engine frame when the equipment is in place in the car.

To this the starting motor is clamped through the medium of two upright studs and a cross bar.

The connections are made to the motor from the storage battery in exactly the same manner as they were on the car.

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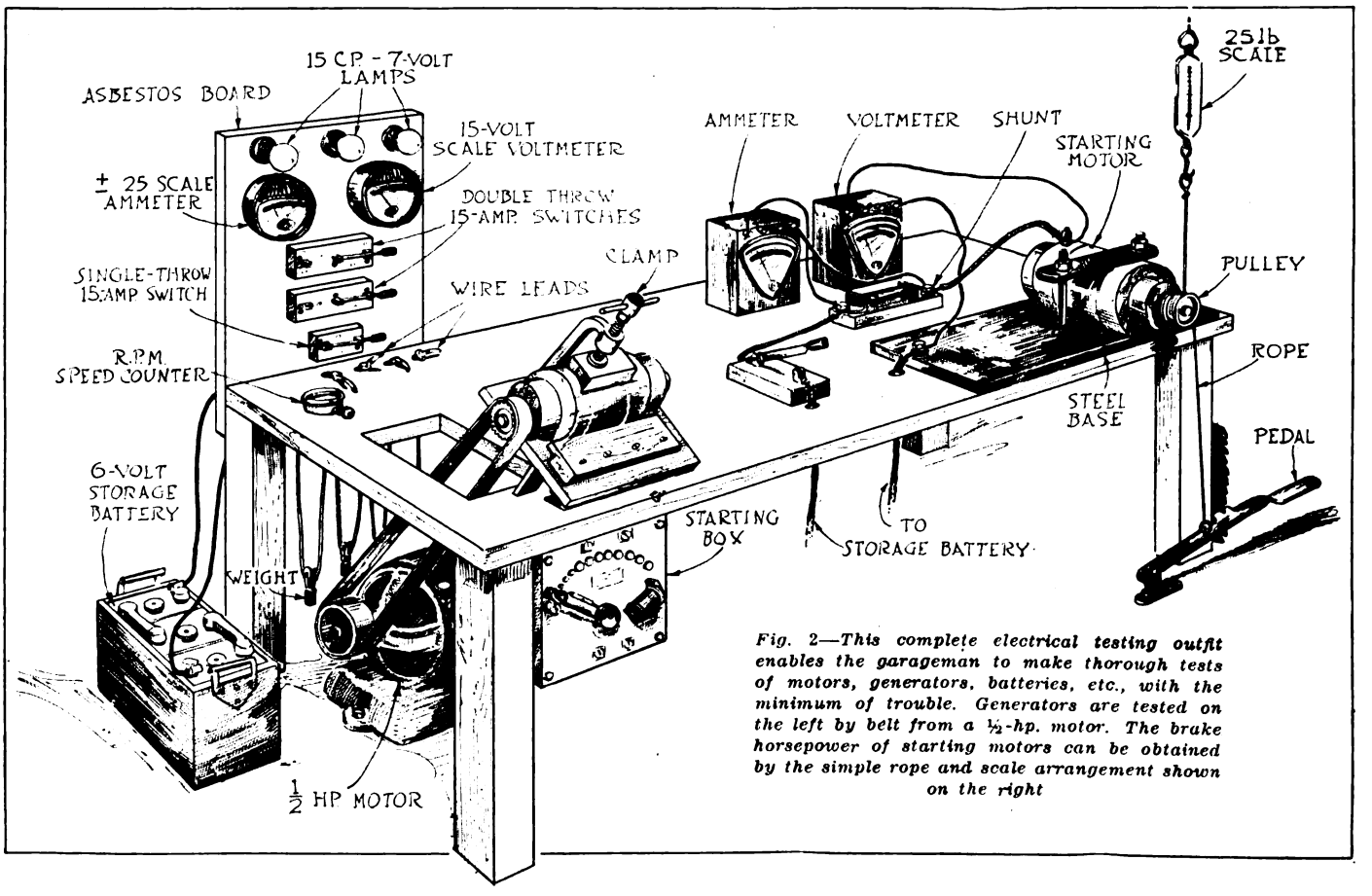


Fig. 2—This complete electrical testing outfit enables the garageman to make thorough tests of motors, generators, batteries, etc., with the minimum of trouble. Generators are tested on the left by belt from a ½-hp. motor. The brake horsepower of starting motors can be obtained by the simple rope and scale arrangement shown on the right

However, as the current flow is high, the ammeter will have to be connected to a shunt, as described in previous articles, and an ammeter and shunt combination permitting the measure of current flow up to 300 amperes is necessary.

The power for turning the starting motor is supplied by a storage battery, a 6 or 12-volt being used, as the case may be.

The load is applied to the starting motor through a prony brake regulated by a pedal and measuring the torque on a 25-lb. spring scale.

All of the wiring on starting motor test equipment, with the exception of the ammeter and voltmeter leads, should be No. 1 flexible cable.

Testing a Generator

THE first test of a generator is to run it as a motor from the storage battery. By knowing the amount of current required to run a generator in good condition and the number of revolutions per minute at which it should run, a comparison may be made with the similar operation of the generator being tested. If an excessive amount of current is required and the speed is somewhat low, a short circuited armature is indicated, while, if the speed is high, a defective field is indicated, or the bearings may be too tight.

Then, by driving the generator connected through the lamps to the storage battery until from 8 to 10 amperes current is generated, the speed of the generator is taken. This is likewise compared with the speed of a normal generator under the same conditions. If it is found necessary to drive the generator much faster than normal, providing the brushes and commutators are in good condition, defective fields or armature are indicated. This condition should be checked up with that of the first test.

Not only do the above tests show exactly what is happening with the generator as compared with a generator known to be in good condition, but also current cut-outs and control can be regulated within the required limits. Any equipment manufacturer can supply the data required in making these tests, or it may be obtained from a generator known to be in good condition.

Starting Motor Test

The first step in testing a starting motor is to run it without any load. A high amperage reading and slow speed will indicate that the bearings are either tight or the armature or field circuits are shorted. This test may be made with one, two or three cells of a storage battery supplying the current. If the current is not excessive but the speed low, the connections and conditions of the brushes and commutator should be examined. Likewise the brushes should be adjusted.

The next test is made under load to show whether the starting motor will deliver its full power at required speed and with the required amount of current. For example, a certain instrument having a current of 135 amperes passing through it at approximately 6 volts should turn 2000 r.p.m. and exert a torque of 1½ ft. lb. This amount, if the pulley were 2 ft. in diameter, would register 1½ lb. on the spring scale. However, it is not advisable to use so large a pulley, and by using a 6-in. pulley the spring scale reading is multiplied by four, giving the reading required.

In making the test the motor is started and sufficient pressure applied to the pedal to bring the spring scale to the required reading. The ampere, voltage and speed readings are taken and compared with the similar readings of a starting motor known to be in good condition. A low reading indicates defective armature or field.

Swedish Crucible Adds 2-Ton Unit

DETROIT, May 8—The Swedish Crucible Steel Co., Detroit, manufacturers of Olson units, has added a 2-ton unit to the line. With the wheel equipment is furnished the Olson 36-in. driveshaft and frame extension, increasing the wheelbase to 136 in. This makes possible the mounting of commercial bodies of large size, their standard stake body having loading space 5 ft. x 10 ft. Internal gear drive is used, gear reduction giving a final ratio of 10 to 1. The load is entirely removed from the Ford axle and borne by the set of large ball bearings mounted outside the internal gear. The bearings have a capacity of 7 tons per wheel. The wheels are steel, of special design, made for the mounting of dual solid-rubber tires, either 28 in. or 32 in. x 3½ in. Heavy auxiliary semi-elliptic side springs 52 in. long and 2¼ in. wide, of thirteen leaves, insure maximum strength, and complete the equipment, which sells for $550 f.o.b. detroit.

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Protecting Finish During Drive-aways

Cars Can Be Given a Coating of an Oily or Greasy Material Such as Paraffin, or Can Be Protected by a Suit of Overalls

By C. J. Shower

THERE is no reason why cars should arrive at their destination, after a drive-away, with their finish in poor condition. Since the advent of drive-aways, dealers as well as manufacturers have burned the midnight oil to devise schemes for protecting the finish of cars that are driven some distance before getting into the hands of the user, and their efforts have not been in vain.

F. S. Bliven, Cadillac distributor in Baltimore, as told in Motor World March 6, invented a very pretentious suit of overalls to put over his cars. The outfit consists of a padded hardwood stick that extends across the radiator, from which straps run up over the windshield. Other straps made of webbing run around the entire car. To this webbing the curtains are fastened. The right door is left free, and the driver is able to get in and out of his car because a piece of thin steel, which fits into the socket of the rain-curtain holder, is turned over.

Overalls Cost $100 for 3 Cars

These covers were made in Bliven's own shop, and the original set of three covers for three cars cost him approximately $100, figuring material and time at cost. When folded up, ready to be carried by the men on the train, they weigh 39 lb. each, and make a package the size of a suit case. It takes only 20 min. to adjust them and only about 3 min. to take from the cars.

On both sides of the car, fastened to the running board, are hardwood boards which hold down the lower end of the cover. Two straps lead from these boards to the straps around the car, and keep the cover from sagging. Over the front springs and radiator, and separate from the covering that goes around the body of the car, is a covering that is fastened to the splash pan. These coverings are made of rubberized top material.

This "overall" has proved so satisfactory that many other Cadillac distributors have adopted its use. A similar outfit could be made for other cars.

The Paige-Detroit Motor Car Co. applies a coating of paraffin to all the cars leaving the factory overland. The cars are driven up alongside the curb, and one by one they are sprayed. A can that holds a quart of the liquid is connected with an air line. By depressing a small lever with the thumb an invisible spray is started.

As soon as the paraffin settles on the body of the car it immediately becomes hard and forms a coating which prevents any dust and mud from reaching the finish. After this has been removed in the manner explained later, the car looks as good as new.

Some Use Vaseline

A number of dealers and manufacturers have adopted the use of certain oils and greases, the most popular of which is vaseline. This, being put on the body with a rag, requires no special equipment and offers very little trouble. It is a very satisfactory protection for the surface of cars. Some dealers use olive oil in the same manner and find it just as good or better.

The difficulty lies not with the application but with the task of removing the coating. Vaseline or any oil or grease can very easily be removed with hot water. Water hot enough to remove it is not hot enough to mar the finish on the car, but care must be used in this to keep the water just above lukewarm.

The water is flowed on from a hose by the same method as is ordinarily used in washing a car. The car is gone over afterward in the usual way with cold water and then polished. After the cleaning process is over nothing remains to tell that a preparation was used.

Vaseline or any oil preparation is different from paraffin in that it remains soft enough the entire trip. Unlike paraffin, it collects dust. In doing so, however, it prevents the dust from reaching the finish.

The disadvantage of using paraffin lies in the fact that it is difficult to remove. Being a hard coating over the entire car, it is necessary to apply much hotter water than necessary for vaseline. This, the dealers complain, has a tendency to leave a residue on the finish which makes it almost impossible to restore the luster. Vaseline, on the other hand, being already in a partially melted state, flows off with the water very easily.

Another preparation successfully used by the Cadillac Motor Car Co. is an oil that can be applied with a rag. In spite of its recommended use, complaints have reached the factory that cars coated with the preparation had ruined the finish. It was stated that after being washed the cars were badly streaked and would have to be revarnished. The factory sent the man who made the preparation to the dealer. It was found that most of the trouble was due to the fact that the men in the shop were afraid to rub. Through this experience the company was led to offer the following directions:

Rules for Best Results

1—Drivers should stop about every 200 miles during the course of the trip and rinse the cars off if they are muddy, but not wash them.
2—Proceed to clean the cars as soon as possible after their arrival, because if they are left the preparations will harden.
3—Rinse off all dirt with hose.
4—Wash the car with lukewarm water and sponge and rinse it off again.
5—Dry with a clean chamois skin, which has first been soaked in water and wrung out.
6—When thoroughly dry, apply polish with waste and rub off. It is important to use an up-and-down or side-to-side movement rather than to "just rub" and move the hand in a circle. Do not be afraid to rub hard; in fact, it is necessary.
7—If the polish does not take all of the preparation off (as it may not on the hood and cowl), use a little rotten-stone with the polish, or apply rotten-stone and water, using a piece of felt. Then rinse off, dry with chamois and apply polish.

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The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer.

THE LAW

By George F. Kaiser

As It Applies to
Dealers
Repairmen
Garagemen

What About Insurance?

When a motorist is puzzled about insurance it is most natural for him to look to his dealer or garageman for information. A little knowledge of insurance on the dealer's part is therefore very often a pleasant thing to have. As most dealers know, automobile insurance is divided into several forms.

Liability insurance covers the person insured against claims for personal injuries to any member of the general public caused by the operation or maintenance of the automobile specified in the policy.

Liability Damage

Liability damage covers the liability of the insured for damages to the property of other persons caused by the motor car specified in the policy.

Collision insurance covers damage to the insured's car by reason of a collision with some object either moving or stationary.

Fire, theft and transportation insurance covers damage to the car itself by fire from any cause. It also covers loss or damage from theft or through the stranding, sinking, colliding, burning or derailing of any conveyance while the motor car which is specified in the policy is being transported by land or water.

Liability for Bodily Injury

As has been often pointed out on these pages, the various courts have held in numerous cases that liability for bodily injury of property damage does not always attach to the person owning the car, and persons who are not owners may be held responsible for accidents caused by use of borrowed motor cars. In cases like the above, the liability of the insurance company is limited to the persons named in the policy. If persons other than the owner are permitted to take a car out for their own use they are liable for accidents while they are using it. Of course, they may be covered and included in the policy by the payment of a small additional premium.

Collision Insurance

As to collision insurance, it is common for an insurance company to write two kinds, *i.e.*, full collision and deductible collision. Under a full collision policy, all damage to an insured person's motor car is covered. Under the deductible collision form, a person insured must pay the first $100 of all losses himself before the company is required to pay anything.

It is well when a car is insured to see just what extra equipment is attached to it. The ordinary policies read that the companies insure "the body, machinery and equipment of the automobile described herein." This provision has been held not to include extra equipment. If, therefore, tools and accessories are added to a car other than those regularly furnished by the manufacturer as part of the regular equipment, additional insurance should be taken out on the extra equipment. This additional premium usually amounts to but a few dollars, and if the additional equipment is not insured there can be no recovery for it.

It is well to remember when taking out automobile insurance that it is only a proper precaution to make all checks payable to the insurance company and not to your broker. If checks are made payable to the broker and the broker appropriates the money for his own use and does not pay the premium, you will have to pay it all over again or have your policies cancelled, because the broker is your agent and not the company's.

Every insurance policy should, of course, be read over very carefully. In connection with this, when reading policies I might advise that dealers look over the policies of the so-called "mutual companies" very carefully. Oftentimes these "mutual companies" cut rates—that is, charge a lower premium than the stock companies.

Obligations of Insured

In most cases when reading over their policies the insured will find, if he reads carefully, that he not only obligates himself to pay a premium of say $50 but also obligates himself to pay twice that amount in addition if the affairs of the company do not prosper. These policies also usually provide that the constitution and by-laws or whatever other name the rules and regulations promulgated by the companies are called, are binding on the insured.

In case of any accident when automobile insurance is carried, the policy should immediately be carefully examined and notice should be given to the company when and where the policy provides. It is a good practical idea to make a short memorandum of what automobile policies provide as regards giving notice and either keep the memorandum in your car or on your person.

The "100 Per Cent" Clause

Editor MOTOR WORLD: In my policies I find what is called a 100 per cent co-insurance clause which reads as follows: "This company shall not be liable for a greater proportion of any loss or damage to the property described herein when the sum hereby insured bears to one hundred (100) per centum of the actual value of said property at the time such loss shall happen." An insurance broker who is trying to get the business tells me that if I had an 80 per cent clause it would be better in case of a fire. Will you please explain what the difference is, as I do not understand.—J. T. Miller, Erie, Pa.

Answer—The clause that you find in your policy covers the amount that you can recover from the insurance company in case of loss. If there is no co-insurance clause then you can recover up to the full amount of the policy. If there is an 80 per cent or 100 per cent clause you cannot recover that much.

Under the 80 per cent clause, if the property was worth $10,000 and was insured for $6,000 and a fire occurred which caused the loss of $6,000, only $4,500 could be recovered from the company. Only $3,600 could be recovered from the company if there was a 100 per cent clause.

When there is an 80 per cent clause in a case like the above, $6,000 can be recovered when the loss is $6,000 or over. When the loss is less than that only a proportion can be recovered. As for example, $\frac{6000 = \text{(the insurance)}}{8000 = \text{(80\% of value)}}$ or $\frac{6}{8}$ which is $4,500 of the loss falls on the company, and $\frac{2000 = \text{(the deficit)}}{8000 = \text{(80\% of value)}}$ or $\frac{2}{8}$ which is $1,500 you must pay yourself.

When the 100 per cent clause is found in the policy only 6/10 of the loss need be paid by the insurance company and the owner must stand 4/10 himself, so you see that the 80 per cent clause is much the better clause for a property owner.

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Repairshop Shortcuts

From Motor World Mechanics

No. 1664—TO REMOVE STUBBORN WHEELS

To remove wheels from shafts when they are rusted or stuck on, place a jack between the rims of the wheels, blocking out with a piece of wood. Set the jack up fairly tight, then pound the end of the shaft, using a piece of brass or wood to protect the threads.—J. Puvogel, Superintendent, United Line Service Corp., New York City.

No. 1665—WORK SUPPORT

A support for the end of long work held in a vise is made by cutting the big end of a connecting-rod off flush with a hacksaw, drilling it and riveting it to a piece of shafting which is the same length as the height of the vise from the floor. The lower end of the shaft is fastened in the hole of a shaft pulley about 8 in. in diameter.—R. B. Laffay, New York City.

No. 1666—SANITARY HEAD REST FOR MECHANIC

A head rest for a mechanic working under a car is made from wood, so that it is about 6 in. high, 14 in. long and 10 in. wide. It is upholstered with some kind of soft padding and 10 to 20 thicknesses of newspaper tacked on top. Sheets of paper that have become soiled can be torn off to leave a clean place for the mechanic's head.—R. B. Laffay, New York City.

No. 1667—MOVABLE GARAGE STALL

A movable garage stall made by notching a cross-piece into the two side pieces, and bracing the rear with diagonal pieces. It is made from 4 x 6 in. lumber and prevents backing the car into the wall or into adjacent cars.—F. R. Crocker, Wheat Growers' Garage, Kimball, Neb.

No. 1668—REMOVING AND CARRYING TRUCK WHEELS

A hand truck provides at once a means of lifting a heavy truck wheel off the axle through the leverage obtained and the means of moving the wheel to the hydraulic press or any other place desired. The axle is jacked up till the iron end of the hand truck can be pushed under the wheel. A pull on the truck will take the weight off the wheel bearings and the truck can be rolled out.—George E. Wilhelm, B. F. Goodrich Rubber Co., New York City.

No. 1669—TOWING BAR

A towing bar having a chain and hook to fasten around the axle of the towing car, a universal joint, and a pivot arrangement to operate the tie-rod of the towed car so that it will follow its leader. The swivel is placed about 10 in. back of the chain and may be formed out of an old Ford universal. The rear end of the rod has two holes, one to go over a stud clamped on the front axle and the other to go over a stud clamped on the tie-rod. —Robert P. Ewer, Bangor Motor Co., Bangor, Me.

No. 1670—METAL HORSE

A horse for placing under the axles while working on cars is made from standard L-sections of steel or iron, 1¼ or 1½ in. Each joint is made with a rivet. The base measures 10 in. wide by 12 in. long, the height of the horse being 12 in. The height can be varied to suit the cars usually handled.—R. B. Laffay, New York City.

No. 1671—TO REMOVE DISK CLUTCH

A disk clutch that has a beveled back plate so that the usual arms of a crane puller will not take hold can be removed by using two short log chains, one on each side of the shaft, back of the clutch. These are bolted together as close to the shaft as possible, bringing the free ends on each side of the clutch and over the puller arms, where they are again bolted together. Pins can be inserted in the arms to prevent the chains from sliding off.—L. R. Bleitz, Fountain Avenue Auto Shop, Los Angeles, Cal.

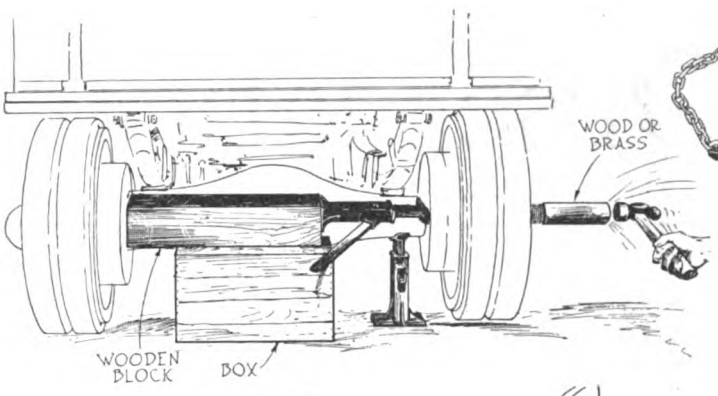
No. 1672—FOLDING SMOKE SHIELD FOR COKE OVEN

Extended pieces of sheet metal are hinged to the ordinary hood of a coke oven so that when heating oily castings the doors can be dropped down, insuring all the smoke going into the hood. When the doors are not in use, they can be hinged up and hooked to the ceiling.—William R. Smith, William R. Smith & Co., New York City.

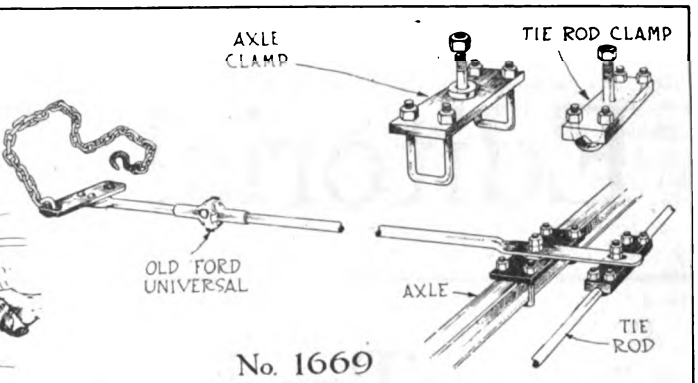
$1 a Helpful Kink

HOW often have you been compelled to rack your brain to overcome some difficulty? But when you did find a solution—what a satisfaction it was! Well, here's a chance for you to dig some of those life-savers out of their hiding places and put them to work for your fellow-craftsmen. Send them to Motor World. We will pay you a dollar for every one accepted for publication. The only requirements are these: 1—*Describe the short-cut briefly but clearly, in few words.* 2—*Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job.* 3—*Write on ONE side of the paper only.* 4—*Sign your name and initials, the name of the company you are with, and the town. Write plainly. If your name is unusual, print it in capital letters.*

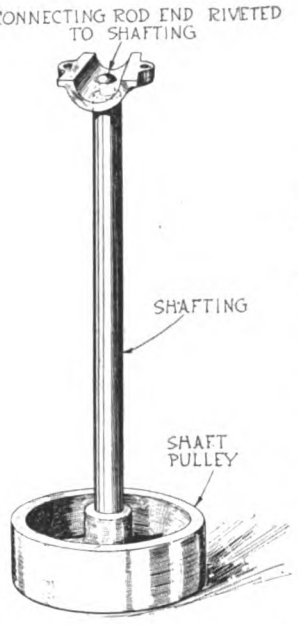
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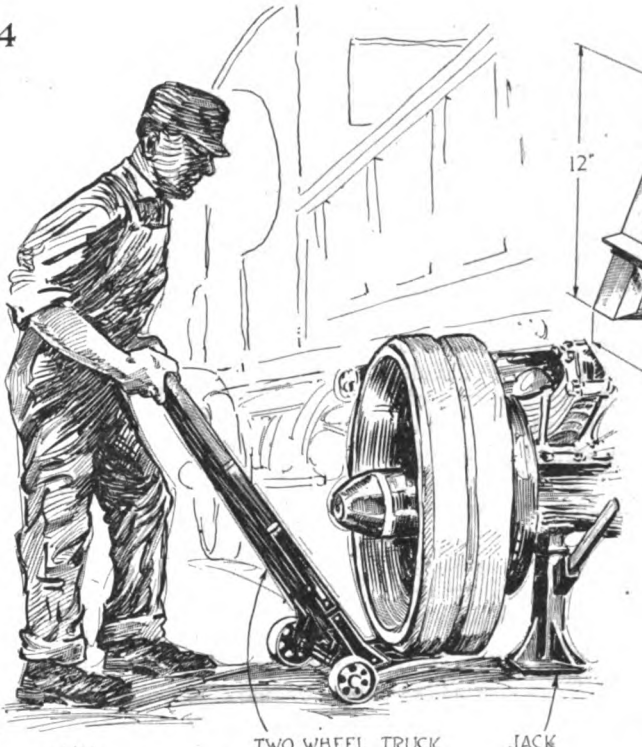
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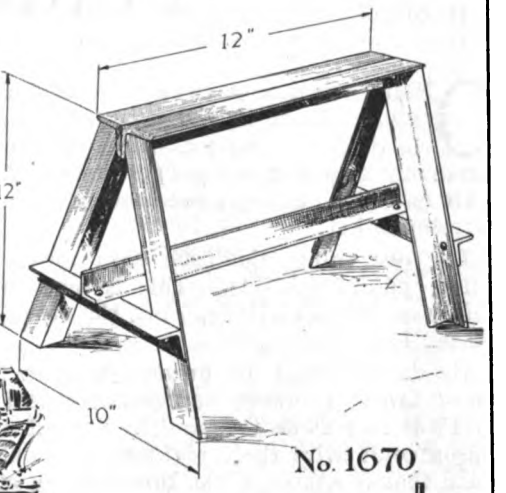
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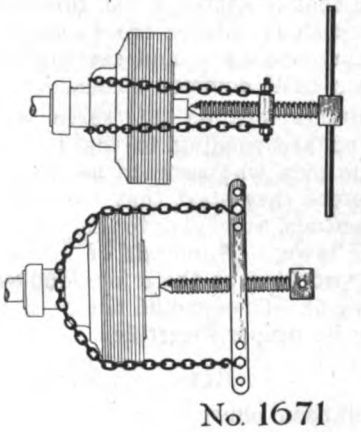
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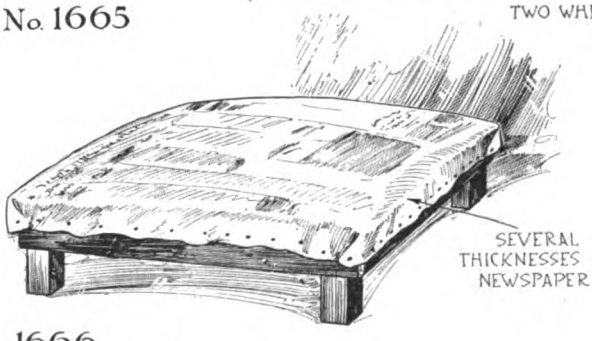
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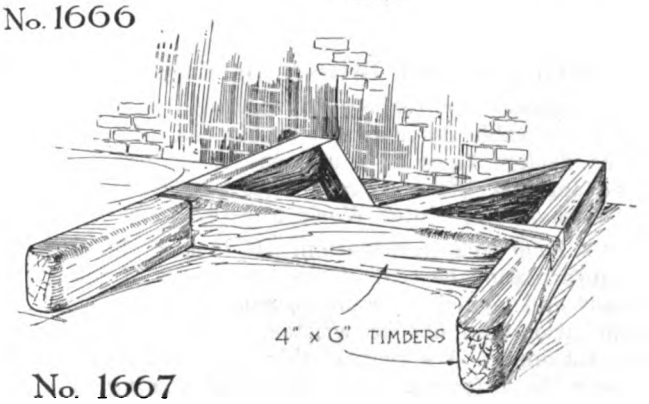
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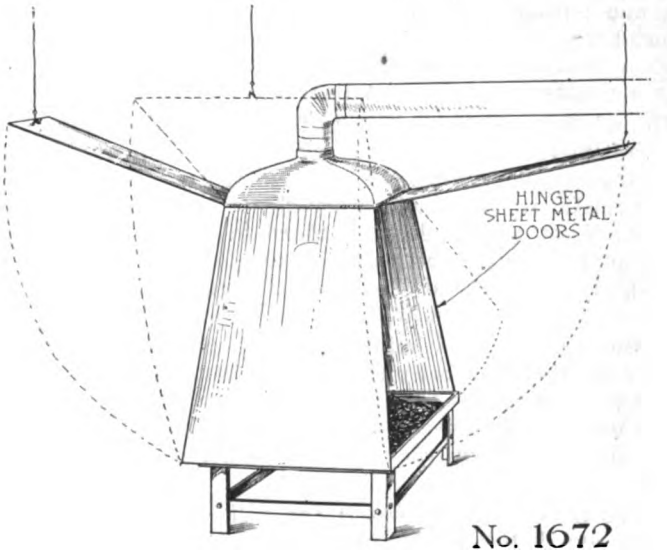
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No. 1667



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Editorial Observation

Trade Privateering

ON the opposite page is a letter from H. S. Collinson, a dealer in Arkansas City, in which he sets forth conditions that seem to amount to what is commonly known to-day as "privateering." And the worst of it is that he charges one automobile man with trying to rob another.

For one thing, Collinson asks for a route between Flint and Kansas City. This is taken up elsewhere in this issue of Motor World, but the other things are discussed here.

He charges that his drivers, because they seemed to be of draft age, were unreasonably held up by officials in Flint and made to stand in line all night until Collinson could wire their registration numbers. It would seem that if anything like this is being pulled off by unduly zealous officials the factory people in Flint should take a hand in it and see that officialdom is tempered with a little common sense.

Furthermore, let this serve as a warning to dealers: If you are sending to the factories or to out-of-town points men who seem to be within the draft age see to it before they start that they are equipped with proper credentials, testifying to their patriotic standings in their home towns. Hundreds of men of draft age are faithfully working at their jobs and waiting for their country's call. They should not be molested but should, however, be properly certified.

Hotels Unfair to Drivers

Collinson charges that the drive-aways were unsuccessful because the drivers were robbed en route by hotels and garages. A dealer or garageman who would extort high prices—such as 50 cents for gasoline—from brother tradesmen in this present trade dilemma is not only a profiteer but very foolish.

The whole trade is working to the top notch of energy and initiative right now to save itself from rapidly changing and adverse conditions, and if the effort is at all successful it will benefit every dealer and garageman. How then can any tradesman afford to throw obstacles in the path of such efforts as the drive-away? He is extorting a few cents at the risk of ruining the whole trade, and with it himself.

There is no excuse whatever for this extortion. It is an offense that has been charged against the trade in the past by motorists, and the man who would do it to either motorist or drive-away crew should be shown up. He is no good to the trade and the sooner he is out the better. Show him up!

Collinson asks Motor World for a list of the "fair" garages and hotels on the route from Flint to Kansas City. We are sorry we can't give it to him. But we make this suggestion. Let such organizations as the Chicago Automobile Trade Association and the Kansas City Motor Car Dealers' Association get to the bottom of this thing and establish a Drive-away Bureau. Let some association official or other competent person accompany a drive-away, investigate the garage and hotel situation, have a frank talk with the hotels and garages and get an agreement as to some fair rates.

Keep Information on File

Then let this information be on file for the benefit of dealers who want to conduct drive-aways. Require every man who gets information to deposit $5 or $10 when the information is given, which money will be returned to him provided he will report to the association bureau his experiences when he returns from the trip. This will assure the bureau's information being kept up to date and will centralize complaints. Furthermore, it will put behind this movement the names of some influential associations, which have far more weight than the names of individuals.

The same thing can be done by every other good city association in every territory. It is a chance to show the country dealers what the big city association is worth to them and also to bind the distributors and dealers closer together.

As to how to cover cars that are to be driven a story is printed elsewhere in Motor World this week.

Also, Motor World will be glad to conduct a Drive-away Department with information about conditions, roads, hotel and garage rates and experiences, with the object of letting dealers know what conditions are all along the route. Send us this information NOW. Give us the towns you pass through—large and small—between the big cities, tell what hotels and garages you stopped at, what rates were charged for different items, and give just exactly the information you would want to know yourself.

What Are Your Drive-Away Experiences?

We request our readers to forward their favorable and unfavorable drive-away experiences. Let the rest of the dealers know if you have something you think would interest them. Every time you return from a drive-away write Motor World a letter about it.

Let's have this information. It is best, however, if this information be sent on the stationery of the dealer himself and signed by some responsible member of the organization and not be written by the driver on his own stationery. We request this in order that we may be sure the information is right and coming from an authentic source.

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Letters from Readers

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

Trade Privateering

Editor Motor World: Inasmuch as you people do more for the dealers than all publications put together I am going to offer a few suggestions which might permit you to do more.

The writer has just completed the third drive-out trip from Flint, Mich. Two bunches consisted of five machines and one of three machines and several individual drive-outs.

And almost without an exception the drive-outs have been what we term unsuccessful. The drivers, of course, were ignorant on drive-outs, and each person they asked gave them different information.

Most of the towns they went through absolutely robbed them on storage, washing and gasoline. One place they report paying $5 for 10 gal. of gasoline. In Kansas City one shop tried to hold them up for $10 for oiling the car all over and adjusting the carbureter. There should be arrangements as to which is the best route from Flint, Mich., to Kansas City.

Now, if the Motor World would get up a map showing the exact route from Flint, Mich., to Kansas City, naming the towns they would go through and the best service stations making arrangements with the garages to wash tourist cars and oil them up at a reasonable price. Name the hotels, and it might be wise to make several routes, for instance, one by St. Louis and another the Northern route, also instructions what to do with cars before leaving the factory. For instance, some people say go all over the cars with vaseline if you must go through the mud, and the factory men will say not to put vaseline on the car. If you would issue instructions along these lines it would help us out.

Now, in our last trip at Flint we sent five boys, all of whom were of draft age and married and had their exemptions, however, very carelessly failed to have their cards with them. The officers at Flint held these boys under guard, made one of them stand up in the room (with 40 other men for cars) from 7 o'clock in the evening until 4 o'clock next morning waiting for a wire from home giving his registration number. Now, these men had credentials on them showing they were in my employ driving cars out for me.

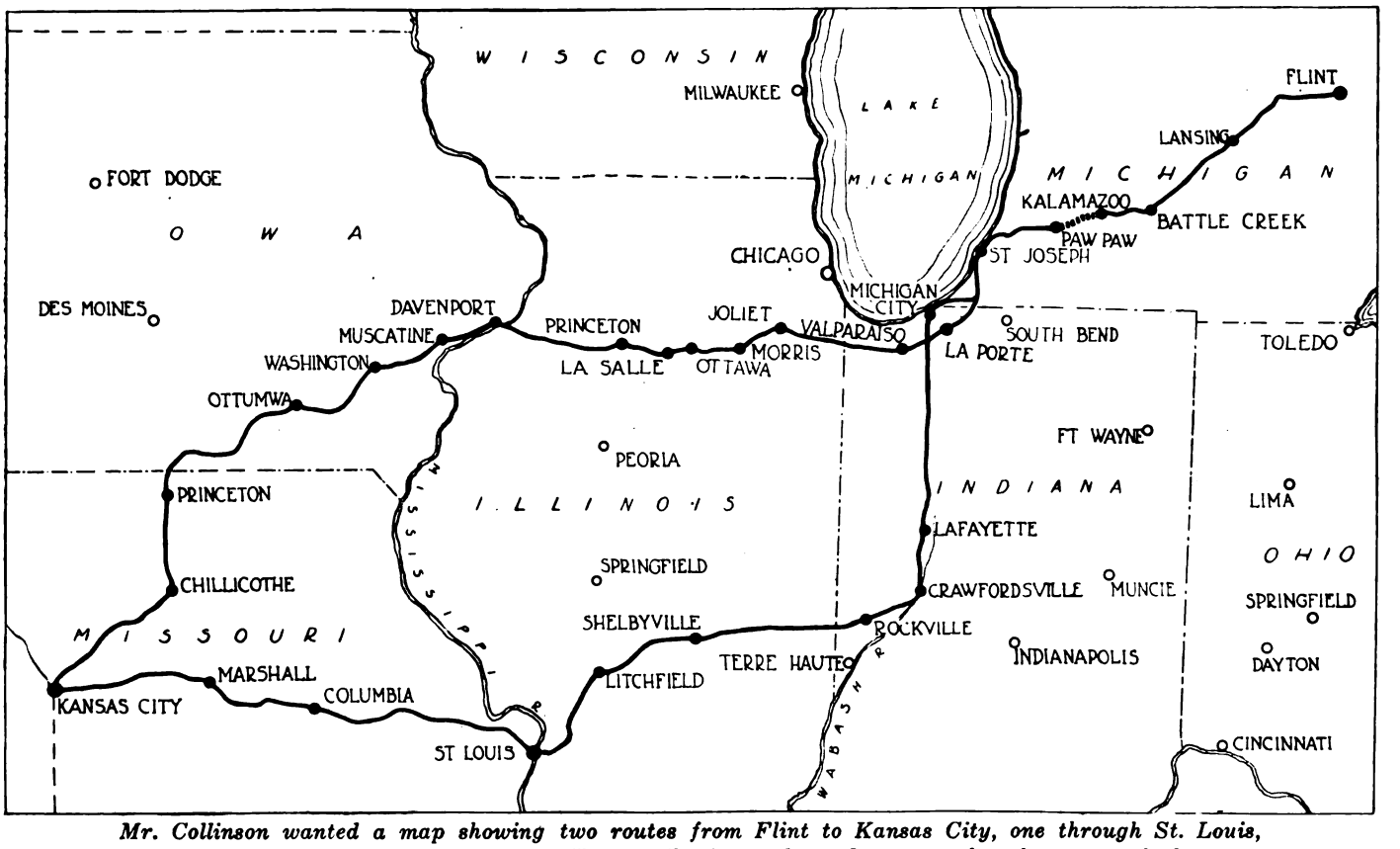
We believe that Motor World should take steps toward such absurd treatment as this.—Collinson Auto Co., by H. S. Collinson, Arkansas City, Kan.

Wants Rental Letter

Editor Motor World: Will you please give me an idea for the best way of advertising or getting up a nice letter telling my friends and others that I am in the automobile renting business, that I have a machine to hire out by the hour, trip, day, week or month. It is a seven-seater Packard. Likewise if you know the rates I should charge by the mile? —H. Ascher, 1403 Webster Avenue, Bronx, N. Y.

Answer—We are pleased to submit a letter which perhaps will assist you in getting business for your renting car.

As to the rates you should charge, you, of course, know that some cars are rented at $2 an hour and some charge $3 or $4. Taxicab rates vary. You probably could not charge the 25 and 30-cent rates that are charged by some cars be-



Mr. Collinson wanted a map showing two routes from Flint to Kansas City, one through St. Louis, and another further north. Here it is. Every mile is good road except the short stretch between Kalamazoo and Paw Paw. The map was prepared from special telegraphic information by the Automobile Blue Book Publishing Co.

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cause you have a big car that is going to cost money to run. From the nature of your letter, we imagine most of your work will be special party work, and will be more or less on the hour basis. For runs to outlying towns you probably will have to make a special charge.

It is hard to tell you how much you ought to charge for this work. If you are exclusively in the rental business and have only the one car, you should figure how long the car will run and plan to set in reserve from your earnings a certain amount each month so that when the car is worn out you will have money enough to buy another one at the same price. You should also take into account gasoline, oil, tires and other expenses and figure in the salary of the driver.

In addition to that, you should add a certain per cent for profit. Take all of these factors into consideration, find what the cost of operation is, and make your rates accordingly. If your rates are higher than those of the people with whom you are competing, you will have to fix the car up in very good condition, give a high grade of service and charge accordingly. There is no use running the car on a rental basis unless you are going to make money out of it. You might better sell the car and get your money out and get a job where you would have nothing to worry about.

Shall I Buy?

Editor Motor World: Please note that I have been running a Willard station with a side line of starter repairing.

Several of the garages in this city are planning to install battery stations this summer, which will affect somewhat my business. I have recently added a few accessories to help out. My gross business has been running about $1,800 per month on batteries and starter repairs only. We have your bookkeeping system.

The above is not an introduction to my life's history, but is intended as data bearing on a question which I am going to ask you.

I have recently made tentative arrangements for the purchase of a garage which is just across the street from my present location.

This garage has about $1,500 tire stock and $1,000 in miscellaneous accessories, mostly good salable stuff. Also have about $100 in garage tools, such as wrenches, grease guns, etc. The lathe, drill, emery wheel and gas and oil pumps belong to the building. The rent is $125 per month. The present proprietor wants $3,500 for the business, including all accessories and good will.

Please give me your advice on the change. At present the garage has 12 steady storage customers at $7.50 per month. I would plan to conduct only my battery business and storage with accessories and gas and oil and repairs on starters and generators only.

At present am paying $40 per month rent, but do not have much of a building.

Will attach a sketch showing the layout, together with other garage locations.

Your advice will be very much appreciated. Shall I make the change? Yours very truly.—Reader.

Answer—The proposition that you are considering looks good to us at this distance. You are paying $3,500 for the business, and about $2,500 of that is represented by salable material. This means that you are paying $1,000 or less for the good-will; as for rental, you have $90 coming in from storage, whereas your rent will be increased only $85. You also have a fine opportunity to expand the business. From the plan you have drawn we imagine that the property on which you will be located backs up on the main street. Our suggestion would be that, as time goes on, open this up on both streets and get the benefit of a double front, unless there is some obstacle in the way.

In this new building you will have an opportunity to use the aggressive methods that have made you successful in the past, and we suggest that you advertise as far as your resources will permit, send out form letters and continue your past activities so that your garage will stand out in the minds of the public in the group of garages in which it is located. We believe if you will do this, you will not suffer greatly by having so many near competitors. Judging from the map you sent, the location is very good, being near the main street and also on the street that leads from the main street to the railroad station.

If you will continue to operate the Motor World System of Accounting as you have in the past and let it tell you as it already has done where you are gaining and where you are losing, we believe you can take this new business over and put the thing over in a way that will be highly profitable to yourself.

The Letter
For Ascher

When you want to ride there is nothing like a Packard.

Maybe you haven't bought a Packard—and maybe you don't intend to—but that is no reason why you can't ride in MY Packard.

My Packard is a seven-seater, looks the part, is easy riding, and is everything you could desire in a car.

Instead of your having to take care of this car I take care of it and bring it to you whenever you want to use it.

The rates for using this Packard are reasonable. I drive it myself and give things my personal attention.

Picnics, outings, the theater, Sundays, evenings, any time. A Packard is always a pleasure. It's yours to use when you want it.

Phone 876 and ask me about it.

Don't Cut

Editor Motor World: While we and every other automobile dealer are certainly more than willing to do all we can for the successful termination of the war, it seems to me that cutting down on passenger car production isn't going to help very much.

In the first place, passenger cars are becoming more and more essential for business men in order that their time may be doubled and tripled to make up for the help they have lost due to enlistments or the draft.

Everybody needs to be as efficient as possible in order that they may have at their command every possible dollar with which to buy Liberty Bonds, pay income taxes, subscribe to the Red Cross and to various other war work demands of a similar nature.

Automobile dealers are certainly doing their bit along with other business men, and I believe they are doing a good deal that doesn't show on the surface, as there is a constant demand on the automobile dealer for the use of automobiles, which certainly cost him money but for which he gets very little credit except possibly from the one who calls him up and gets the service.

I am not mentioning the automobile manufacturers very much because even a considerable curtailment would not hurt them as much as it would the dealer, because they can at least keep going by taking on the manufacture of something in the line of munitions or army supplies for the Government.

I mention the dealer particularly because if you take away from him cars to sell there isn't a great deal he can do to keep going.

I certainly hope the men who are handling this particular problem will take a very broad gauge view of it in order that the various people who would be affected by curtailment of passenger automobile production will not be hampered in conducting their business in such a manner that they can be of the greatest possible assistance to the Government in carrying on the war.—The White Motors Company, W. A. Rutz, General Manager, New Haven.

One Hundred Per Cent. on the Loan

Editor Motor World: We take pleasure in enclosing herewith a copy of letter which we have to-day sent to the Liberty Loan Committee, New York City, and which the writer knows you will take pleasure in reading.—E. A. Laboratories, Inc., W. Von Elm, Brooklyn, N. Y.

The Letter

April 29, 1918.

Liberty Loan Committee: We beg to advise that on Friday we had two speakers address our employees in the factory and it affords us pleasure to advise you of the result of same.

We have one hundred and ten employees. After this meeting was over one hundred and eight employees subscribed in the factory for bonds to the amount of $7,000. The two employees that did not subscribe at the meeting had previously purchased bonds on application blanks submitted by their children from school.

This gives us a record of 100 per cent for men and women connected with our institution who have bought bonds of the Third Liberty Loan issue. We believe this entitles us to an honor flag. If you will kindly forward same we will take great pleasure in displaying same in our office.

Yours very truly,
E. A. LABORATORIES, INC.

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The RETAIL NEWS

PACIFIC COAST

E. N. Shryock, Bakersfield, Cal., has sold his interest in the Auto Electric & Battery Co. to A. M. Robertson. The firm is now styled Harris & Robertson.

Hayes & Murray, operating a general merchandise store at Bakersfield, Cal., have added a stock of Mason tires.

John Reed has bought the Page Garage at Fillmore, Cal.

B. R. Muidoon has opened the Fillmore Vulcanizing Works at Fillmore, Cal.

C. C. Elkins, Fillmore, Cal., has sold his garage and opened a general accessory store and battery service station.

William W. Wurzburger has remodeled the Ford Garage, Lancaster, Cal.

M. C. Livermore has opened a tire shop and vulcanizing plant at Lancaster, Cal.

The Buckeye Auto Supply Station & Garage has opened quarters at Mojave, Cal.

The H. A. Jones Motor Truck Co. has moved its main office from Riverside to San Bernardino, Cal., and will operate the Arrowhead Garage in the latter city.

N. A. Pallow and **M. G. Robinson** have opened the San Bernardino Cut-Rate Tire Store, San Bernardino, Cal.

The San Bernardino Rubber Works has opened salesrooms at 595 Third Street, San Bernardino, Cal., and will handle the Hupmobile and Chalmers.

Joe H. Eddy has purchased an interest in the San Bernardino Rubber Works, San Bernardino, Cal., and the firm will be styled Naschke & Eddy.

H. I. Bradley has bought the garage and Maxwell agency at 446 D Street, San Bernardino, Cal.

Henck & Reed have moved the Triangle Tire Shop to 420 Fourth Street, San Bernardino, Cal.

F. G. Stickney and **N. I. Bogart** have opened an accessory store at 839 Third Street, San Bernardino, Cal., under the style Stickney & Bogart.

William Nisle has opened salesrooms at 538 Court Street, San Bernardino, Cal., and will handle Saxon cars.

The Pacific Auto Wrecking House has opened a branch in San Bernardino, Cal., with A. Wilenchik, J. Camers and S. Goodman as proprietors. The company's main office is Pomona.

Dexter & Martin have opened the Bear Filling Station at 398 Third Street, San Bernardino, Cal., and will carry a complete line of accessories.

Montgomery & Dickenson, Santa Paula, Cal., have added a battery department.

Roy A. Saviers has bought the People's Garage, Santa Paula, Cal.

W. B. Naugle, Santa Paula, Cal., has obtained the selling agency for Oakland and Maxwell cars and Case tractors.

Edward J. Bush, Oregon City, Ore., has opened a Ford agency at 1103 Main Street.

David Hodes Co., Portland, have opened a parts depot at North Broadway and Flanders Street.

The Northwest Auto Co., Portland, has leased a 4-story building at Ninth and Alder Streets for showrooms and salesrooms. The company handles Reo, Cole, Marmon, Dort, Stearns and Roamer cars, and Duplex, Reo, Indiana and Bethlehem trucks.

B. E. Gregory, Okanogan, Wash., has taken the agency for Ford cars and Federal trucks.

Hoyt & Elcks, Inc., Seattle, automobile body builder, has opened new quarters at 1515 Broadway.

The Martin-Stuart Co., Tacoma, has opened a tire salesroom and service station at 750 Broradway. Diamond tires will be handled.

Hand & Sullivan, Tacoma, have formed a partnership and opened a tire salesroom and service station at Tenth Street and Tacoma Avenue. A vulcanizing department has been installed.

The Sander-Westfall Co., Tacoma, Wash., has opened a repairshop at Fifty-eighth and Hood Streets.

MOUNTAIN

I. M. Sink has opened a repairshop at Julesburg, Col.

Jess Grant has opened a tire repairshop and salesroom at Julesburg, Col.

EAST

Cahill & Co., distributors of Dodge Brothers and National cars in Wilmington, Del., will move soon to new quarters at Second and French Streets.

The Delaware Cycle Co., Wilmington, has moved from 407 Delaware Avenue to new quarters at 1105 Orange Street.

The Concord Boulevard Garage, Wilmington, formerly conducted by Howard Williams, has been bought by Charles T. Hartmann, who will operate a service station.

New Garages

P. F. Martin	Philadelphia
F. E. Hall	Philadelphia
Marco Marks	Philadelphia
Robert Burns	Philadelphia
Charles Atherton	Philadelphia
August Schaubacher	Philadelphia
Conrey & Co., Inc	Philadelphia
Anthony Mignione	Philadelphia
M. Biermesiter	Philadelphia
George G. Melloy	Philadelphia

SOUTHWEST

F. L. Mattocks, Eureka Springs, Ark., has bought the McKinley Hussey Garage.

East & DeLamar, Malvern, Ark., have opened a branch of the Arkadelphia Motor Co.

The A. Hood & Sons Co., Baxter Springs, Kan., has bought the building at Military and Twelfth Streets, and is remodeling it for a repair and accessory shop.

C. A. Taylor, Boisington, Kan., has bought the automobile and garage business of Peugh & Kelley.

Nichols & Hawk, Enterprise, Kan., have bought the Swanger automobile repair business.

Clyde Gozad, Goff, Kan., has bought the Goff White Way Garage from Thoren & Pinick.

J. H. Drake, Hazelton, Kan., has sold the Hazelton Garage to Fred Allison and Fred Handley.

Evans & Anderson, Herington, Kan., have bought the repairshop of Liggett Brothers.

Alex Abel, Holton, Kan., has bought out his former partner in the firm of Baskett & Abel.

Magee Brothers, Independence, Kan., have leased the Vincil Garage.

R. B. Lignoski, Laredo, Kan., has sold the Rio Grande Tire & Rubber Co. to Lin Kirkindell.

Case & Miller, Leavenworth Kan., have leased the J. C. Davis Garage.

The Bussinger Garage, Lebanon, Kan., has succeeded Bussinger & Hart.

The Hodgson Tire & Supply Co., Little River, Kan., has opened salesrooms.

The Nickerson Garage, Nickerson, Kan., is remodeling its building.

Guy Spillman, Nortonville, Kan., has bought a half interest in Carl Robinson's garage and repairshop.

The Osage Motor Co., Osage City, Kan., has opened additional salesrooms.

The Auto Tire Supply Co., Pittsburg, Kan., has opened a supply and accessories store.

V. E. York, Pittsburg, Kan., has bought the Boyles & York Garage.

J. A. Farmer, Pratt, Kan., is making extensive improvements at his garage.

Davies & Marsh, Buffalo, Mo., dealers in accessories, are erecting a new building.

F. C. Blackbur, Malta Bend, Mo., has enlarged his quarters and added the Mitchell.

Ray Schooling, Sturgeon, Mo., has bought the E. M. Little & Son Garage.

W. T. Foster, Windsor, Mo., has purchased the repairshop of Perry & McClelland.

W. J. Crites, Bartlesville, Okla., has bought the Capitol Hill Repairshop.

Wantland & Brown, Edmond, Okla., have bought the Edmond Garage.

The Sleeper Motor Co., Tulsa, Okla., will erect a new building.

Floyd Sullivan, Waurika, Okla., has bought the City Garage from Ford L. Marks.

The Rankin Auto Supply Co. has opened quarters in Beaumont, Tex.

L. L. Luckett, Coleman, Tex., has sold his interest in the Luckett Brothers Garage to Chas. Paddleford.

Kelly Willis, Crockett, Tex., has opened a vulcanizing plant.

The F. L. Shaw Auto Co., Dallas, Tex., has increased its capital from $10,000 to $125,000.

H. Hansen, San Antonio, Tex., has bought the vulcanizing, tire and accessory business of Lowry & Doolin.

The McCauley-Ward Motor Supply Co., Waco, Tex., has increased its capital from $25,000 to $50,000.

New Garages

Jones Ward	Arcadia, Kan.
C. O. Varner	Augusta, Kan.
Pete Houts	Bartlett, Kan.
F. G. Moser	Blue Rapids, Kan.
Arnold & Son	Chapman, Kan.
Arthur Munson	El Dorado, Kan.
G. S. Stephens	El Dorado, Kan.
Haskins & Burnett	Eskridge, Kan.
A. D. Conder	Girard, Kan.
Britt & Christ	Hawleyville, Kan.
Fred Otti	Hutchinson, Kan.
Inter-State Vulcanizing Co.,	Junction City, Kan.
Hodgson Tire Co.	Little River, Kan.

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Emil Aksamit (addition).....Lucas, Kan.
J. T. Richards .....Lyons, Kan.
Overjohn Brothers .....Mineral, Kan.
L. S. Wilson.....McCue, Kan.
J. W. Prince.....Ottawa, Kan.
The J. H. Garage.....Paola, Kan.
C. O. Varner .....Parsons, Kan.
Beal Tire Co.....Pittsburg, Kan.
Jesse Spray .....Salina, Kan.
E. C. McNerny.....Tonganoxie, Kan.
C. F. Burton.....Webster, Kan.
Loren P. Hatten.....Westphalia, Kan.
A. J. Christman .....Wichita, Kan.
C. C. Guyer.....Wichita, Kan.
Clarence Auto Co.....Clarence, Mo.
E. & F. Hopkins.....Garden City, Mo.
T. & C. Trindle.....Hardin, Mo.
Albert Lilly .....Joplin, Mo.
Propes & Overly.....Mound City, Mo.
John Gingry.....New London, Mo.
Henry Hartbauer .....Washington, Mo.
Phelps Brothers .....Beaver, Okla.
J. M. Craig.....Duncan, Okla.
Dewberry & Moon .....Gould, Okla.
W. Gorman .....Medill, Okla.
J. G. Scruggs.....Muskogee, Okla.
X. R. Gill.....Okmulgee, Okla.
Stiles, Muncy & Fitzgerald....Stigler, Okla.
Brickel & Isaacs.....Wynnewood, Okla.
Daniels Brothers .....Cisco, Tex.
Corsicana Battery Co.....Corsicana, Tex.
Stephens & Jackson.....Dallas
Keith & Hudson.....Granbury, Tex.
Simmons & McWilliams.....Kaufman, Tex.
M. R. Box.....Kosse, Tex.
O. A. Brannon.....McKinney, Tex.
Ben Rawls.....Sterling City, Tex.

NORTHWEST

The Parks Motor Co., Afton, Iowa, has purchased the vulcanizing business conducted by the Afton Harness and Saddlery Co.

E. H. Streepy & Son, Cincinnati, Iowa, have bought the Beall Auto Co., Albia, Iowa.

The Youngstrom Auto Co., Des Moines, has changed its style to the Holtberg-Hanselman Auto Co.

The Marsh-Kinney Oakland Co. has opened a salesroom at Glenwood, Iowa.

Bartholomew Brothers, Ford agents in Keokuk, Iowa, have moved to new quarters, three times as large as their former showrooms.

E. G. Singleton has opened a service station in Keokuk, Iowa.

The Smith Motor Co., Newton, Iowa, has bought the C. F. Mackerman Taxi Co.

The Owens Service Co. has taken over the Prest-O-Lite business at Red Oak, Iowa.

J. J. Tauzer has bought the garage of Benzler & Nelson at Kearney, Neb.

The Midway Motor Co. of Kearney, Neb., has opened a branch at North Platte, Neb.

New Garages

W. H. Powell.....Albia, Iowa
Edward Grant .....Harlan, Iowa
Fred Grill.....Lake View, Iowa
Mutual Garage .....Riverton, Iowa
Steffen Brothers.....Storm Lake, Iowa
Ahrenkeil Garage .....Vail, Iowa
H. L. Morris.....Big Springs, Neb.
I. U. Harrison.....Cozad, Neb.
Davis & Matz.....Cozad, Neb.

10 Ideas From Successful Salesmen

My Sales Attitude

My most successful sales plan is to show the prospect that I am trying to help him in the selection of a car that will give him satisfaction rather than merely seeking to sell him one. I make him realize I believe in it myself; that I had to be sold on it first as my bread and butter depend upon my ability to make others realize how good it is, and that is more important to me than is the one deal with him.—Maurice Hessel, Albertson Motor Co., Los Angeles.

Ask an Owner

After making the usual demonstration and having my statements about economy of operation doubted, I find the thing that seldom fails is to give the prospect a list of names of twenty-five or more owners and tell him to select any of them he pleases and find out what tire mileage they get, how many cars they have owned, etc.—W. A. Hoblit, Franklin agency, Los Angeles.

Called on All Owners

One of the best plans I ever saw tried out was to have a tactful man employed to do nothing but interview owners. He asked how the car was, if there had been any trouble of any kind or similar question. He insisted that the car be brought in for attention the following day or that he be permitted to take it immediately. He kept a card upon which to make a report and at the bottom of every card was "Do you know anybody interested in the purchase of a car?" The owner would appreciate what we were trying to do for him and reciprocate by giving us prospects.—M. H. Green, Ralph Hamlin, Los Angeles.

Stay Till You Sell It

A way of getting business that proved especially good for us in disposing of used cars was putting the car in the hands of a salesman, giving him a certain territory and telling him to take the car out and stay out until he had sold it.—E. W. Johnson, Apperson Branch, Los Angeles.

A Swinging Display Chart

To emphasize the personnel of the factory and the dealer's own organization, especially if the proprietor is not always in the salesroom, the pictures of these men may be made about 2 ft. square and placed on the leaves of one of these upright affairs consisting of leaves swinging about a central standard. Casually turning these large faces before the prospect will impress him with the heroic size of the institution and its leaders. Buildings may also be shown.

Analyze the Prospect

The successful motor car salesman must be shrewd and able correctly to analyze his prospect. If a man has the reputation of being generous and liberal, I argue along the lines of the enjoyment that a car will bring to his family. If he is tight-fisted and hesitates about letting go of a dollar, I argue about the wonderful value he is receiving. Every man has his strong and weak points. It is up to the salesman to locate these.—C. W. Frey, Bloomington, Ill.

Change the Tune

When a prospect does not follow the channel I am working on, I study up some different word picture to get his attention.—W. J. Haughey, MacFarland Auto Co., Denver.

Find Who Is Boss

To gain interest without loss of time and effort, I always find out as soon as possible who is boss, whether husband, wife or children. —W. W. Barnett, Denver.

Check the Accessories

About the hardest problem is to show the average prospect, already an owner, that his old car isn't worth more than the new one he wants to buy. An accurate appraisal basis, with figures right before his eyes, is the only sure solution I know of for this. If he waits for another visit, I have my appraisal record on hand and check over to see whether he has been stripping his old car to get ahead of me.—W. W. Barnett, Denver.

Sales Team Work

My best sales move has been to establish team work in my sales force.—W. W. Barnett, Denver, Oldsmobile.

Make Him Think Investment

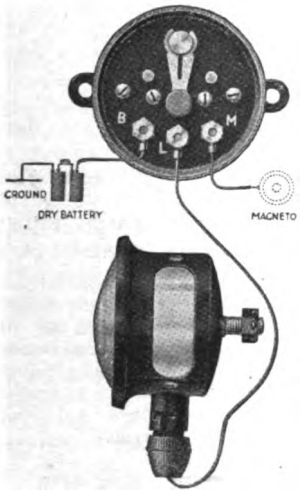
If a prospect says price too high, I show him where my own 8-cylinder car will cost only about $40 more per 5000 miles than my 6-cylinder of the same make—including gasoline, tires and interest on the additional sum invested. Then he begins to think investment rather than bargain.—W. W. Barnett, Denver.

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Accessories

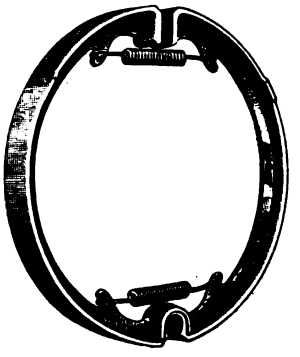
CORCORAN - VICTOR TAIL LAMP

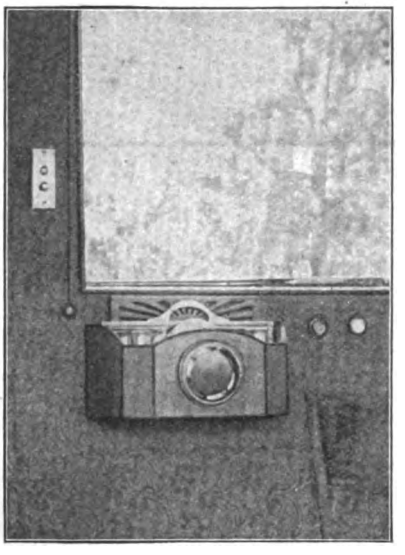
Model 49-H and L single bulb electric tail lamps for Fords operating either from the magneto or dry cells. Model 49-L is of the indicating type, with a small switch bulb to indicate to the driver whether or not the tail lamp is burning. Illustration shows the wiring connections.—Corcoran-Victor Co., Cincinnati, Ohio.



ADAMSON BRAKE SHOES FOR FORDS

Brake shoes for Fords either unlined or lined with wire insertion asbestos riveted to shoe The faces are hardened where they come in contact with the cam. Adamson Mfg. Co., East Palestine, Ohio.

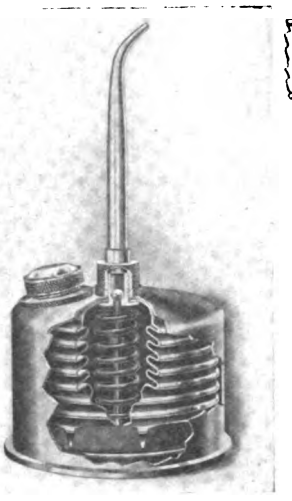






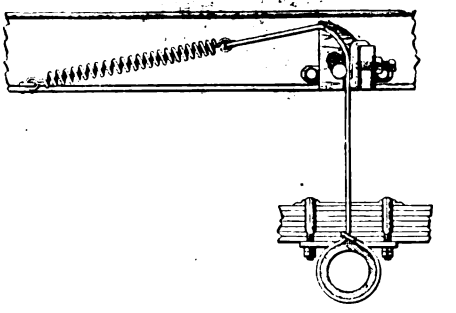
THE MOTOR DICTOGRAPH

A sensitive microphone or telephone transmitter installed in closed cars so that the occupant can convey instructions to the driver by pressing a button which rings a buzzer, and then pressing another button and talking in an ordinary tone of voice toward the transmitter. Releasing the button cuts the connection and nothing further can be heard by the driver. Type A is intended for installation during body construction. It sets flush in wall and is covered with ornamental silver plate. Type B is for installation in finished cars and transmitter. Buzzer and push buttons are contained in a mahogany case 3¼x5¾x1 in. The Vanity Case Type has the transmitter installed in the opening designed for the clock. The device uses two dry cells. Horn and loud speaker are adjustable to any position.—General Acoustic Co., 220 W. Forty-second Street, New York.



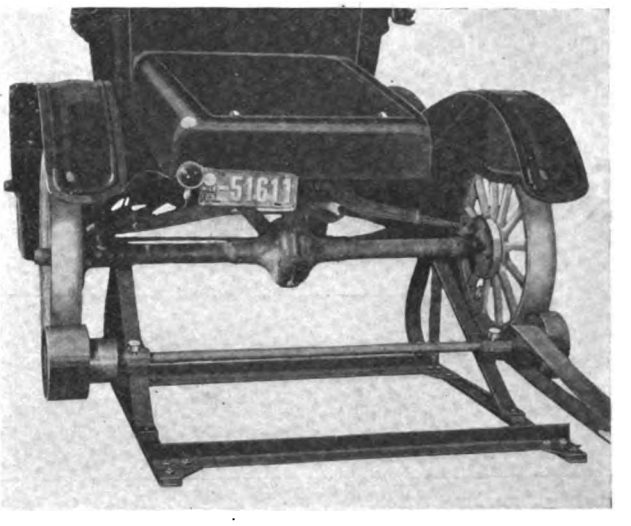
SYLPHON OILER

An oiler with exterior casing of heavy gage steel which houses the internal container which is a Sylphon. The contraction of the Sylphon forces the oil out, or when it is allowed to expand, the oil is drawn in. Ordinary filling is through a screw plug. A ball catch valve is lifted from its seat by a stem on compressing the Sylphon back to its original position. No spring bottom, piston or valves. Price $1.50.—Fulton Co., Knoxville, Tenn.



COMMON-SENSE SHOCK ABSORBER

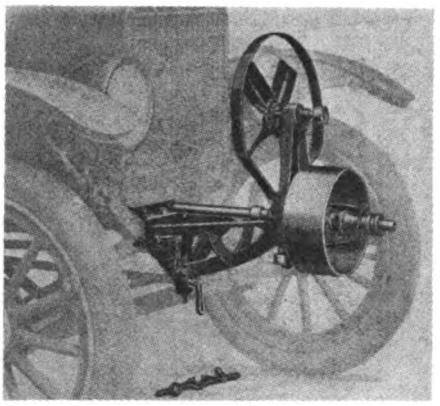
A shock absorber consisting of a strap, one end of which is fastened around the car axle, a spring attached to the other end of the strap and a friction device whereby the strap is taken in rapidly by the spring on the up-bound of the axle, but allowed to return slowly. The friction device and spring are attached to the inside of the frame. Price $12.50 per pair for light and medium weight cars, $15 per pair for heavy cars. —Common-Sense Mfg. Co., Runyon Street & Sherman Avenue, Newark, N. J.



VERSAL MOBILPOWER CONVERTER.

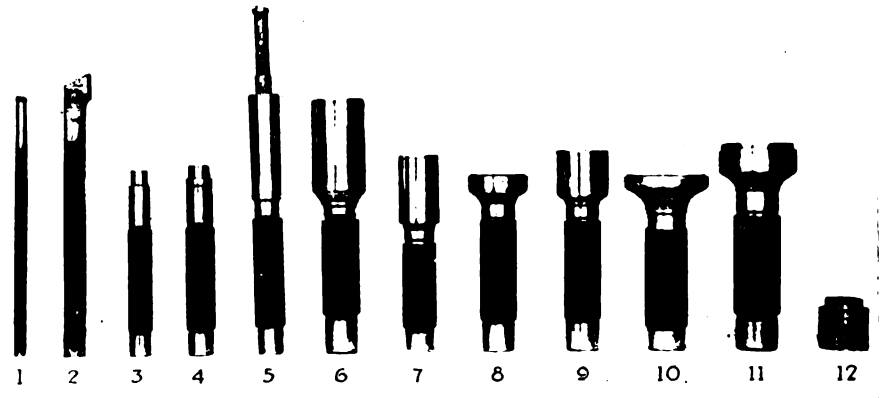
An inclined frame with cross shaft and pulleys against which the rear wheels of the car press, revolving the pulleys, convey the power to any machine desired. Frame is channel and angle iron structural steel, weight 90 lbs. Cross shaft runs in two 5 in. babbitt bearings lubricated by grease cups. Frame is slid in under rear axle and pushed down on rear end, this having the action of a jack, raising the car and allowing axle to slide down the incline till wheels are in contact with pulleys. Weight of car keeps them in contact. Belt pulleys 4 in. diameter, 5 in. face, speed 600 r. p. m. Price $28.50.—Versal Products Mfg. Co., Detroit.

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McGILL AUTOPOWER ATTACHMENT

An attachment for Ford cars whereby the power is taken from the front of the engine through an extension shaft and pulley so that it can be belted to grinders, saws, shellers, etc. Is attached to the car in about 2 hours by fastening a plate to the front cross frame member. An auxiliary fan supplements the Ford fan to assist in cooling the circulating water. A special clutch pulley enables the engine to be started and the load then applied. Pulley size 10 in. diameter x 4 in. face. Price $60.—Hyslop Bros., Toronto, Canada.



ARBOR PRESS BUSHING DRIVERS

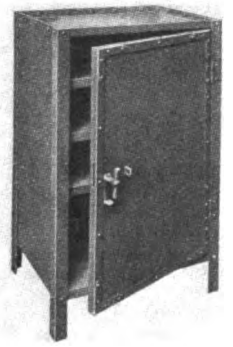
A set of arbor press bushing drivers and ball race tools for Fords consisting of twelve tools. 1. Spindle body bushing driver. 2. Tool for removing inner or outer ball races. 3. Spindle arm bushing driver. 4. Triple gear and piston pin bushing driver. 5. Transmission brake drum bushing driver. 6. Slow speed bushing driver. 7. Tool for driving roller bearing sleeve on propeller shaft. 8. Driving timing gear on crankshaft. 9. Front wheel outer ball race driver. 10. Front wheel inner ball race driver. 11. Reverse drum bushing driver. 12. Transmission driven gear puller block. The price of the complete outfit is $30.—Service Station Equipment Co., 233 W. Schiller Street, Chicago.

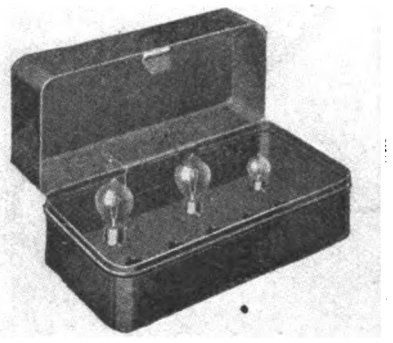
SPLENDOLA BODY CLEANER AND FINISH

A body cleaner in powder form to remove oxidation and a liquid finish to be applied after the cleaner has been used to prevent further oxidation. Cleaner 25 cents per package, finish $1.25 per quart can.—C. F. Roberts Co., Inc., Detroit.

INDIVIDUAL WORKMAN'S CABINET

Individual locker with shelves and door with padlock. Door can be either sheet steel or wire. Width 21½ in., height 30 in., depth 15½ in., leg 6 in. Finished in brown enamel baked on. Frame is angle iron.—Manufacturing Equipment & Engineering Co., Boston.





HAYES ELECTRIC LIGHT BULB CASE

A black enameled metal box with spaces for eight bulbs, two for headlights and six for small lights. Bulbs are held rigidly in place without touching each other. Price $1 packed in carton.—Onguard Auto Necessities Co., Detroit.



FORD RADIATOR TEST PLUG

A test plug for Ford radiators constructed of hardened steel and high grade soft rubber. Price $3.—Service Station Equipment Co., 233 W. Schiller Street, Chicago.

RELIABLE RATCHET JACK

A ratchet-lifting jack designed for heavy loads. Detachable steel handle is 17½ in. long with a telescopic steel extention to 33 in. Can be put in place from standing position. An auxiliary foot catches the lowest axles. Motion of jack can be reversed by turning handle. Weighs 9 lb.; capacity 1 ton; lift from 11 to 18 in.; price $5.—Elite Mfg. Co., Ashland, Ohio.





STOLL AUTO BED AND TENT

A combination shelter and sleeping equipment which folds into package 4½x8x47 in. long. When in use, one end of the bed rests on the runningboard and tent roof fastens to top of car. An extra shelter tent fastens on other side of car. Bed clamps to runningboard without boring holes or marring. It has a steel frame with mattress fabric and twenty-two rows of flexible steel cables attached to tempered springs at head and foot. Weight 65 lbs. crated. Price $48.50.—Stoll Mfg. Co., Thirty-third & Walnut Streets, Denver, Col.

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Doing Business *on the* CASH BASIS

DOING business on a strictly cash basis offers just as many advantages from the customer's standpoint as it does from the proprietor's standpoint. In fact, of those who have tried it, most of them believe that selling for cash benefits the buyer more than it does the seller.

There is an ingrown idea that the average man will object to paying cash because it is more trouble. But is it?

If he buys on credit he must wait for a slip to be made out and then sign it. Then he must save the duplicate of the slip, make a record in a notebook, or trust to the honesty and infallibility of the proprietor and his helpers. Finally at the end of the month he must check the items on the statement with the slips, confer with the proprietor on disputed items and then pay the bill.

Obviously, from this survey of the matter, it is easier for him to pay cash, and the proof of this statement is that car owners who have been educated to the advantages of the cash system are enthusiastic about it, believing it far ahead of the old, antiquated credit system.

Old Fashioned Credit Buying

Buying on credit, in most lines of trade, has no place in a wide-awake, up-to-date country where money is plentiful. Looking the world over, it will be found that the volume of cash business done is an index of the country's prosperity and degree of progress. Where progress is slow and money is scarce credit is the rule and payments long delayed. The advantage is as much with cash over credit as the one price policy of the more civilized countries is ahead of the haggle-and-get-as-much-as-you-can methods of less advanced countries.

Selling on credit represents a principle which no good business man would tolerate if applied to any other part of his business. Forget for the moment that we are talking about money inasmuch as it merely clouds the issue, and think of a purchase as a transaction. If the purchase is for cash the transaction is begun and completed on the spot. It is good business to complete the transaction as soon as possible after it was commenced. It is following out the most modern ideas. On the other hand a purchase on credit represents a transaction which is inexcusably drawn out for a long period with its satisfactory completion more difficult as each day goes by.

The cash system eliminates the dead beat—but he requires no consideration anyhow.

Of prime importance is the fact that paying as you go prevents disputes and misunderstandings which cause loss of trade and sometimes loss of reputation as well, inasmuch as the disgruntled ones may develop into knockers. This holds true regarding all phases of the automobile business but particularly the repair end.

When To Check Repair Bills

When a car has been repaired, the time for the owner to go over the various items on the statement is when he receives the car. It is then an easy matter to determine whether all the work has been satisfactorily done. On the other hand if he does not pay on the spot the chances are that he will not thoroughly satisfy himself that the work has been correctly done but will wait until something develops. The something may be an entirely new trouble but, in his ignorance, he may claim that it is due to some defect in the work.

In that case he will insist upon an adjustment of the statement when it is received. If the repairman does not make it, the customer may not only refuse to pay but may go elsewhere in the future. So the repairman is a double, yes, a triple loser. He loses on the work done, loses the customer's trade, and also the trade of others which the customer, if satisfied, might have brought to him.

Cash Avoids Disputes

It seems hardly necessary to explain in detail that similar disputes might occur regarding the purchase of supplies and accessories.

Having decided that it is advisable to adopt the cash system, the question of how best to do it must be solved.

In the first place the change should be scheduled for a day far enough in advance so that the customers may all be sold on the idea. The advantages of the change should be explained to each one.

After the new policy is in full swing, firmness is necessary in dealing with customers. There must be no exceptions to the rule *or the proprietor will soon be forced to make many exceptions and finally he will be back on the old basis.*

There will always be some customers, mainly those employing chauffeurs, whether business houses or private owners who will not find it feasible to pay actual cash for daily purchases. These may be taken care of, however, by using coupon books. The customer pays cash for the book which may be of any denomination and as purchases are made coupons are torn out.

Using Coupon Books

Books of $5, $10 and $25 will be found satisfactory. A little difficulty is offered because it is not convenient to use coupons of less than 5 cents but it is not serious. Suppose, for example, that the purchase came to $1.79, it would be necessary to take $1.75 or $1.80 worth of coupons.

There are two solutions. One is to tear out $1.80 and return 1 cent in cash, or else omit returning the cent. In this case, if the purchase was $1.77 only $1.75 would be taken out. In other words coupons to the nearest 5 cents are removed. This averages up very well so that in the long run neither proprietor nor customer loses.

Storage should be paid in advance. It should be due on the first of the month, and privileges of the garage should be withdrawn after a reasonable number of days, usually a week.

Perhaps the only exception that must be made is in the case of a concern whose driver may fail to notify it in time for a check to be mailed before the old book is exhausted. To minimize this difficulty it is good practice to notify users of coupon books in advance that it is time to buy a new one. This may be done by a printed postal card.

Benefits to Customer

1—*Elimination of error in paying for his purchases.*

2—*The necessity of recording his purchases so that he can check the statement at the end of the month.*

3—*The trouble of checking the statement, conferring with the proprietor regarding disputed items, and adjustments.*

4—*The danger of living beyond his means is automatically done away with.*

5—*Somewhat reduced prices because of the fact that the proprietor can use his capital for buying advantageously instead of for carrying his customers' accounts.*

6—*The customer holds the garage in higher esteem because down in his heart he knows that selling for cash is a more business-like way of doing business.*

Benefits to Dealer

1—*Prevention of misunderstandings, with consequent loss of money, trade or both.*

2—*Elimination of bad debts.*

3—*Reduction of capital required.*

4—*Simplification of accounting.*

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High Transportation Efficiency Object of Essex Car

Directors of Essex Motors All Hudson Officers—Distinctive Light Weight Four Will Be Marketed Through Hudson Dealer Organization

THE organization of the Essex Motors announced in Motor World last fall was followed with more than usual interest because its directors are also officers of the Hudson Motor Car Co. At that time it was stated that the new concern would have its product on the market during the summer of 1918.

It has been known for almost 2 years that a lighter, lowed priced car than the super-six would be furnished Hudson dealers. Although the Essex is being produced by an organization which is altogether separate from the Hudson company, it is being built in the Hudson factory and will be sold by Hudson distributers and dealers, thus giving it the stamp of an established factory and an established selling organization, based on a design brought out by engineers of Hudson experience.

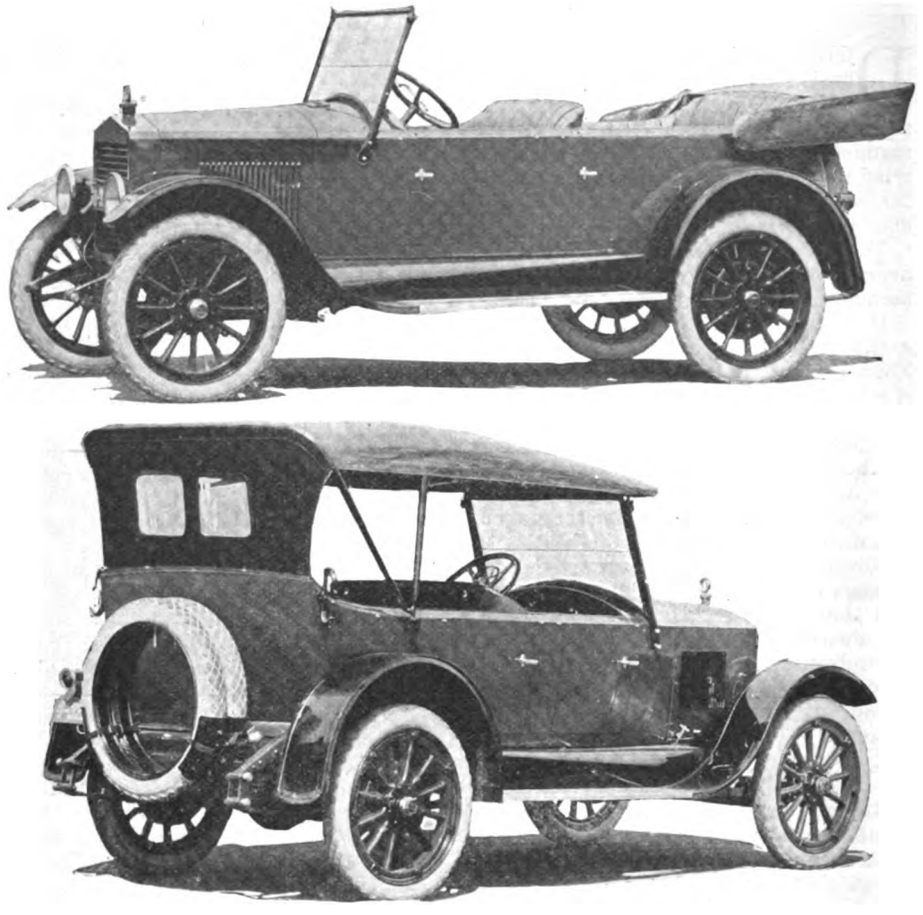
For the present a five-passenger touring car alone will be made. In the fall a Sedan model will be brought out. The body design is unusual, although beyond the more decided use of the beveled edge which is carried to the front end of the radiator, there is little about it which could be termed radical.

The car sells for $1,395, and incorporates the qualities making for low maintenance and economy. The wheelbase is 108½ in. although a side view makes this appear at least 115 in., due to the low hung body, short hood, long cowl and general distribution of space.

Probably the most unique feature of the car is its engine. This is of a lightweight high-speed type, 3⅜ x 5, having four cylinders and developing more than 55 hp. at 2800 r.p.m. This power, with a total car weight of 2580 lb. including filled tank and two extra tires, gives an unusually high power-weight ratio.

A representative of Motor World drove one of these cars over the roads around Detroit and found the speed range between 4 m.p.h. and 63 m.p.h. on high gear. The car is exceptionlly smooth riding, due to its balance and the use of 54 in. rear springs, one half the length of the wheelbase. Due to the use of Lynite aluminum alloy pistons and a fully counter-balanced crankshaft, there is no noticeable period, although this is generally found in the neighborhood of 28 miles per hr. on four-cylinder cars.

The engine is of special interest being unique in many particulars. It is peculiarly adapted to a car of this short wheelbase because of its short length. Although developing in excess of 55 hp. it is but 29 in. overall, thereby using but little of the wheelbase length. The intake valves are in the head and the exhaust valves on the side. The top of the cylinder head is removable, the manifold carrying the carbureter, being bolted directly to the head.



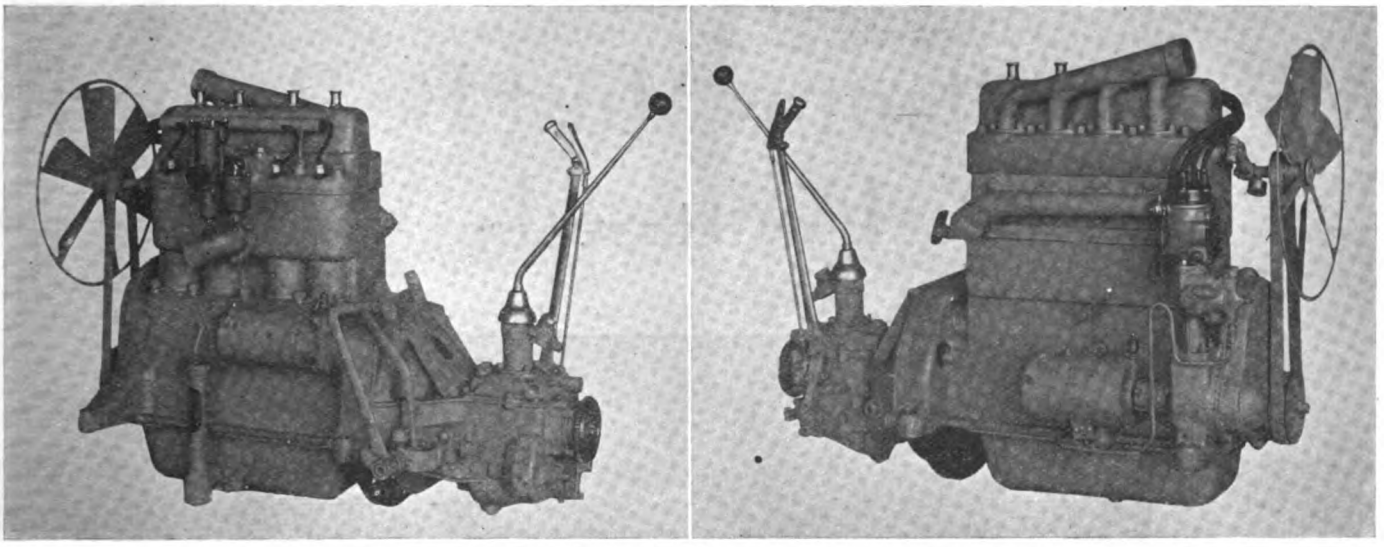
The Essex has the ultra-modern beveled edge body, the straight lines being carried even to the radiator. The lower view shows the back of the body and the high seat backs

The flow of gas from the carbureter is downward into the top of the cylinders, thus distributing the gas evenly into each cylinder. One of the objects of this method is to overcome starting difficulties in winter, as well as to assure even distribution. Another factor in the distribution of the gases is that the cylinder head and manifold passages are internally machined.

The cylinders are cast in a block. The engine is made up of three main castings; the cylinder block, cylinder head, and the crankcase, which is aluminum. There is an oil pan of pressed steel which can be dropped and which provides access to the main bearings. The design has been particularly carefully worked out for free intake gas passages. The machining of the ports which are of large diameter and the placing of the intake valves in the head, these valves being 2 1/16 in. diameter in the clear, permit of high volumetric efficiency and preclude the possibility of wire-drawing up to speeds of 3000 r.p.m. The car is so geared that the motor is turning over at 3000 r.p.m. at a car speed of 60 miles per hr. Inasmuch as the car is capable of more than 60 miles per hr. the speed possibilities of this little powerplant may be appreciated.

In accordance with the necessity for permitting high rotative speed, the crankshaft is of large diameter. There are three bearings; the front having a diameter of 2 1/16 in. and a length of 2¼ in., the center 2 3/32 by 2⅛, and the rear 2⅛ by 2⅝ in. The valve drive is taken through helical timing gears with the intake and exhaust valves both operated

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The Essex engine has a very short overall length. The intake valves are in the head and the exhaust valves are at the side. The carbureter is mounted directly on the cylinder block and the distributor and generator mounting are very accessible

on the same camshaft. The cams are integral with the shaft which is carried in four nickel babbitt bearings. The intake valves are operated off a rocker arm, while the exhaust, being on the side, is actuated through straight push rods.

Thermo-syphon water circulation is used, the cooling system being to a large degree controllable by the operator through hand-operated shutters on the radiator. A Boyce motometer is part of the equipment. The water enters at the center of the left side of the waterjacket and is carried off slightly to the right of the head. This gives free water circulation around the plugs and valves through large jackets.

Lubrication is by constant level, circulating splash. The reservoir is in the pressed steel oil pan, bolted to the base of the crankcase. This pan is so exposed to the air draft resulting from the motion of the car that the oil is kept cool. The oil pump is connected with the throttle so that the length of the stroke of the oil pump is in relation to the throttle opening. From this point the oil overflows into splash troughs in the usual manner and the bearing surfaces are lubricated by the spray from the connecting rods.

Gasoline is supplied through the Stewart vacuum system, the gasoline tank being in the rear, having 13 gal. capacity and protected by being within the frame extension. The tank carries an automatic gage.

The carbureter is made particularly for the Essex, being a product of the engineers who designed the car and is a piston type in which a piston is raised by the suction of the engine, lifting in its turn the metering pin which governs the gasoline feed. For starting there is a strangling device.

Delco electric equipment is used for lighting, starting and ignition. Lighting and starting is by the two-unit system with the generator mounted on the right side of the engine, being fastened to the crankcase by means of a strap around the center of the generator housing. The drive is taken off the same gear which operates the Delco timer-distributer unit. The starting motor is mounted on a flange on the left side of the crankcase engaging with the fly-wheel by means of a screw gear. The electric lamp equipment includes parabolic head lamps with dimming attachment, instrument light, tail-light, and there is also an electric motor-driven horn located beneath the hood. The electrical switches are equipped with security lock and keys. The spark plugs are in the head just to the side of the intake valve.

Essex Specifications

Price, touring	$1,395
Make of engine	Essex
Number of cylinders	Four
How cast	Block
Bore	3⅜
Stroke	5
S. A. E. horsepower	18.2
Ignition	Delco
Carbureter	Essex
Starting-lighting system	Delco
Clutch	Disk
Gearset	3-speed
Wheelbase	108½
Tires	32 x 4
Wheels	Wood
Steering	Left
Control	Center
Type rear axle	Floating

The multiple disc clutch is contained in an oil-tight case in the center of the flywheel, thus forming in connection with the engine and gearbox a unit power plant. The clutch has cork inserts giving a soft engagement. The gearbox is a standard three-speed type mounted on roller bearings throughout, provided with a lock to hold the gears in neutral position. The rear incorporates Hotchkiss drive with semielliptic springs mounted or shackled at the rear on continuations of the frame unit. The rear axle is a floating type with a reinforced pressed steel housing in which the driving gears and differentials are mounted on a separate carrier bolted to the housing. This carrier, together with the assembled gears, can be removed without taking the axle from the car. The driving gears are helical type. The ratio in the rear axle is 4.75 to 1.

One of the unusual features of the car is the size of the brakes. The brake bands are 14 in. in diameter and 1¾ in. wide. These are on the rear wheels, which carry 32 by 4 in. tires. Wheels have twelve-spokes front and rear. The spring suspension covers an unusual proportion of the wheelbase, the front spring being 36 in. in length and the rear 54 in. Both springs are 2 in. wide. This gives a total of 90 in. of spring length out of a wheelbase of 108½ in., or 83 per cent of the wheelbase length. The frame is also unusual in its dimensions and construction. It is a channel-beam type 6 in. in depth at the point of greatest stress. The powerplant is bolted to the frame at the rear direct to a cross member. The frame is strengthened both at the front and rear by tubular cross members.

Due to the short engine and the use of the unit powerplant, together with an absence of lost space between the radiator and engine at the front end, it has been possible to put an unusually roomy five-passenger body on this car. The driver's compartment can be entered or left without difficulty and the operating levers are within easy reach. In appearance, the body is distinctive owing to the beveled edge running from the front end to the rear. This gives a noticeably straight effect. The shape of the radiator is distinctive being a straight angle on top instead of a curve, and the slanting windshield set well back on the cowl presents an attractive appearance. The seats have high backs reaching the passenger's shoulders on an average height man. Cushions are deep and set low so that at no time are the knees of the driver above the edge of the car.

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Why Headlamps Must Be Properly Focussed

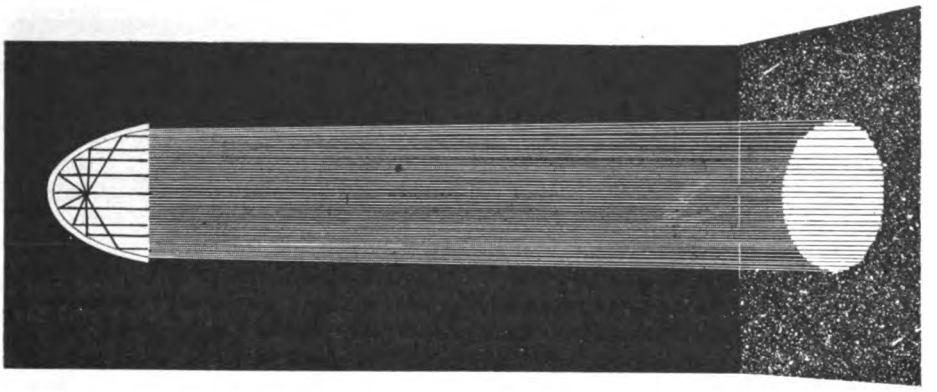


Fig. 1—Showing the almost cylindrical beam of light which issues from the parabolic reflector of a headlamp when the bulb is correctly placed at the point of the focus

1—Unless headlamps are properly focussed it is impossible to obtain proper illumination of the road.
2—The various types of glare eliminating lenses are designed to be used with headlamps that are properly focussed and accurately adjusted.
3—The addition of a glare removing lense to an improperly focussed lamp will not give the correct result.
4—Therefore, the first essential to good illumination and the elimination of objectionable glare is the proper focussing of the lamps.—EDITOR.

LIGHT projected from headlamps is almost entirely composed of beams from the filament of the lamp going to the reflector and reflected from there.

Light beams have the peculiar property of reflecting from a surface at the same angle that they strike it.

In other words, the angle of incidence and the angle of reflection are equal.

The reflector of a headlamp is made in the form of a parabola, which is a curve having a point called a focus. The curve is so designed that no matter where a beam of light be thrown from the focus to a point on the reflector, the angle of the reflector at that point will be such that it will reflect the beam parallel to the axis of the parabola.

The total number of all these beams are what form the cylinder of light which issues from a correctly designed headlight with its bulb at the point of focus, Fig. 1. Of course, an absolutely cylindrical beam would not be desirable, as the illumination would be too restricted, but that is impossible of accomplishment as the source of light, that is, the lamp filament, cannot be concentrated in a single point.

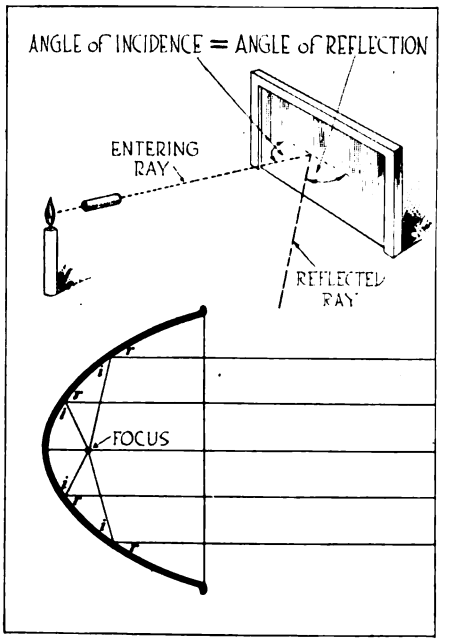


Fig. 2—Diagram showing the law of light; the angle of incidence is equal to the angle of reflection in the case of a beam of light striking a plane mirror, and below, as the same law applies to the light reflected from the parabolic reflector of a headlamp

The fundamental law of light already referred to, that the angle of incidence is equal to the angle of reflection, and the application of this law to the parabolic reflector of a headlight, is shown diagrammatically in Fig. 2. It will be seen that the angle of incidence of any one of the beams of light is the same as the angle of reflection of the same beam, no matter at what point on the parabola the beam strikes the reflecting surface.

It is only possible to make one curve that has this property, but it is possible to cut the ends off the curve at any point without affecting the back part of the reflector.

The main fact to be kept in mind is that there is only one point located in the parabola which will throw the light beams to all parts of the parabola at angles so that they will be reflected parallel to the axis.

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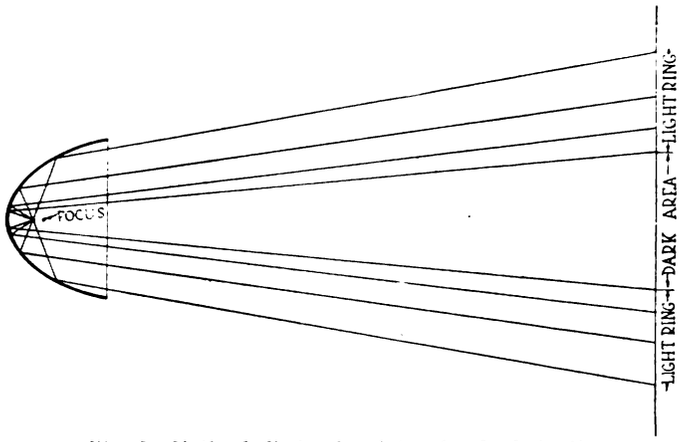


Fig. 3—If the bulb is placed too far back in the lamp the resulting beams of light will diverge, leaving a dark area in the center, surrounded by a weak ring of light

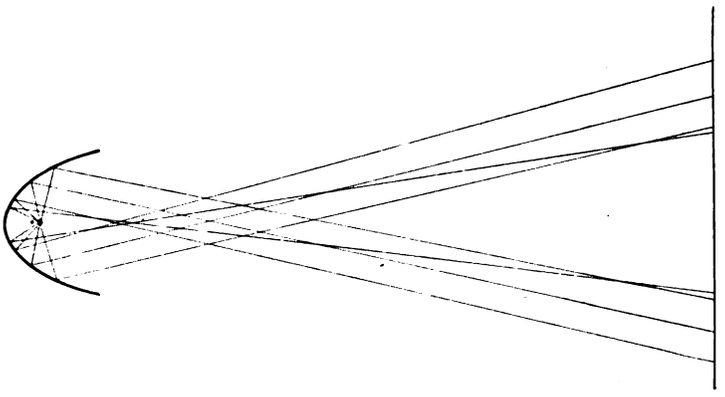


Fig. 4—If the bulb is too far out, that is, is situated in front of the point of focus of the reflector, the rays of light will cross at a point near the lamp and cause a weak widespread illumination

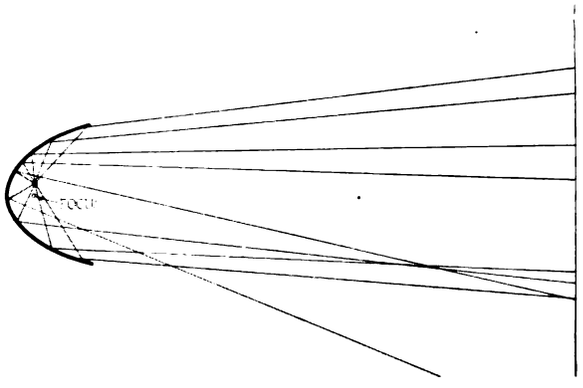
This is why it is so essential that bulbs be properly focussed.

If a lamp filament is placed at any other position than the focus, the rays issuing from the reflector will either diverge, giving an extended, weak light, or else they will concentrate in a ring around a dark central circle, Figs. 3, 4 and 5. Neither of these conditions is to be desired, consequently the filament must be in its correct focal position to give a powerful, even light in a small area.

Almost all headlamps are provided with means for moving the bulb in and out on the line of the axis, so that this adjustment is not difficult. It is simply a matter of moving the bulb in and out till the lighted area is even, well lighted and the proper size.

If it is impossible to secure this result, there must be some defect. Headlight bulbs are made with focal lengths of ¾ and 13/16 in. and with the filament concentrated in as nearly a point as it is practical to manufacture.

Fig. 5—If the lamp is above or below or at either side of the focus there will be diversion and crossed beams that will give insufficient illumination at a distance



Although both of the focal lengths should answer equally well, perhaps the particular lamp construction will not allow the filament to extend or recede far enough and the other focal length bulb may be tried.

Be sure that the bulb does not have an extended or long filament. It is impossible to get the correct focus with such a filament. There is also the possibility of the filament being out of the axial line of the reflector on account of the socket connection being too loose, bulb defective or something bent in the socket support. Proper remedies to these cases will bring the filament to its correct position.

Lauraine Car Generator

A GENERATOR which may be either gear, chain or belt-driven from the car engine, is being manufactured by the Menominee Electric Products, Inc., 1765 Broadway, New York City. This generator has a normal output of 50 watts, 6 volts and 8 amperes. Under charging conditions the generator begins to charge the battery at about 900 r.p.m., the voltage at that speed being 10½, and the amperage just overcoming the current of the battery. Voltage rises to 11¾ at a speed of 1600, and amperage rises to 7½, which is approximately the maximum in each case.

The generator is built in two types, both being identical, with the exception of the bearing equipment. Model FP is provided with phosphor-bronze bearings, lubrication being taken care of by a wick oiler with return groove to prevent oil throwing. Type FB is provided with Norma ball bearings.

A Ward Leonard regulator is used, and this may either be mounted in a unit with



the generator, in which case there is only one binding post, the ground return being through the frame; or, if desired, the regulator may be mounted at a distance from the generator. In this case, there would be three leads. The armature is laminated, and made up of sheets of high-grade armature steel. It is shunt wound. The commutator has 24 sections, insulated with Canadian mica. Carbon brushes are specified, and, as the armature is carefully balanced, good commutation is obtained at all speeds. The shaft is of high-grade steel, polished, and ½ in. in diameter. The frame is of the bi-polar type, of semi-steel.

The entire generator is finished in glossy black enamel, and is mounted to a plate by means of two ⅜-in. studs in the bottom of the machine. To obtain the correct speed for charging, the generator should run from the engine at 2:1 for medium-speed engines and 1½:1 for high-speed engines. The price of the Model FP with plain bearings is $25, while the ball-bearing Model F B lists at $30.

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To Probe Entire Airplane Program

Searching Investigation Should Reveal Much to Clarify Situation Without Helping Our Enemies

WASHINGTON, May 13—The entire airplane program is to be probed. Following a letter addressed to President Wilson by Howard E. Coffin in which he "requests and urges that an official inquiry be had in order that the reputations of innocent men may not be ruined," the President has replied saying: "The Department of Justice will co-operate to the utmost in seeing that all charges are probed and the truth got at."

This investigation should result in making public volumes of information which will create some optimism among the American people.

Many Misleading Reports

Many misleading reports of a critical nature have been given very general circulation. A case in question was that recently a hydroplane with a Liberty engine was flying over an aviation field near the capitol, when a single-seated French fighting plane drew near and not only flew around the American machine but gave a demonstration of fighting stunts that the hydroplane was never expected to perform.

There was only one inference from the report, namely, that our planes were vastly inferior and not up to fighting requirements. This story went broadcast. It discounted our own machines.

The error lay in the fact that it was utterly ridiculous to compare the two machines. They were intended for entirely different work and each was built for its specific job. The French machine was a stunt battleplane. The American hydroplane was for observation and other purposes.

When the pilot of the French machine read the comments in a Washington paper he was thunderstruck at the ignorance of the paper and amazed to think that such unreasonable and ridiculous comparisons should be imposed on the American public. Such a comparison would never have been thought of in France.

Borglum Report Discredited

The general discrediting of the alleged official report by Gutzon Borglum, the New York sculptor, in official Washington, is one clarifying feature of the week. Until the correspondence between President Wilson and Borglum was made public there was a very general feeling that the President had commissioned Borglum to furnish an official report.

This has been specifically denied. Borglum imposed himself upon the President, and, as the President might have done with any other friend, he suggested that officials would be glad of any information that would shed light on the highly embroiled aircraft situation.

As the Borglum report has not been made public, it is not definitely known what it embraces, but sufficient has been made known generally to discredit the report, and it is fortunate that a Senate investigation requested by Coffin will take the place of any reports such as the Borglum one.

Unfortunately, too much circulation has been given to the report of the Aeronautical Society of New York. This report has been peddled around for publicity purposes, and can only be construed as a sorehead production. It deals too much in generalities to be of any value.

It is most unfortunate that the rumor of the Liberty engine being nothing but a Packard engine should have been given such circulation. This looks like driving a wedge into the industry. Such a rumor would never have gained circulation had stories of the Liberty engine, which were written as long ago as June, 1917, been permitted to be published. Officials of the Aircraft Production Board wanted such information given out, but it was stopped in other ways.

Based on Foreign Design

The public should know that the fundamentals of the Liberty engine are based on European designs, and that the present engine is not the experimental engine developed by the Packard company, and for which it was reported that the Packard company is now asking the government for a sum between $500,000 and $1,000,000 to pay for the development of its aviation engine—an engine it bodily set aside when the development of the Liberty engine was started.

The design of steel cylinders of the Liberty engine, which are made from forgings, and have stamped water jackets welded in place, were taken from the Mercedes racing cars which won the Grand Prize race in France in June, 1914, scarcely a month before war was declared. We know that Mercedes was manufacturing aviation engines of this type in great quantities before war was declared, and that when war was declared there were over 3000 of these engines ready for use. There are engineers in America to-day who visited the Mercedes factory in Germany and saw these engines.

The Liberty Engine

In the Liberty engine practically no effort is made to interfere with this design of cylinder. The valve position was not changed. There may have been some detail changes, but fundamentally the cylinder design originated in Europe and not in America.

The present Liberty engine has the two groups of six cylinders set at a different angle than the original Packard aviation engine. Many other examples might be cited to show that the present Liberty engine is not a Packard engine, although there may be many details in it that were Packard, the same as there are many details developed by other companies. The connecting-rod design was developed by DeDion. It is approximately the same as used in Cadillac cars, which copied the DeDion practice. So it is with other details entering into the design. In view of this it is unfortunate that the impressions should have gone abroad that it is a Packard engine.

Credit Where Credit Is Due

Packard must be given due credit for the development work it did during 2½ or 3 years previous to the war, and nobody will have any thought of not giving credit where credit is due. Undoubtedly the company spent over $500,000 on this development work previous to our entering into the war, and unquestionably much of this experience enabled Lieut.-Col. J. G. Vincent to make the progress that was made in the design of the Liberty engine. This, however, is quite different from calling the present Liberty engine a Packard engine.

At present it would seem that all accusations as to profiteering, etc., on the part of airplane manufacturers on the $640,000,000 appropriation are most groundless, and perhaps the most ridiculous rumors of the day. Such rumors are based on the condition that so few planes have been manufactured. The report has been circulated that each of the planes that we had on the fighting front in Europe cost us approximately $140,000,000. This is about as ridiculous, although it may be true, as to say that the first automobile of a given model may cost $150,000, which sum includes development costs and jigs and tools.

How Some of the Money Was Spent

Some recent reports have been given out as to some of the ways in which the $640,000,000 has been expended. Some of these items are as follows:

A—For airplanes, engines, and general machine equipment	$163,000,000
B—For hangars and aviation fields in U. S. A.....	42,000,000
C—For aviation fields, etc., in France	31,000,000
D—For gas balloons	5,000,000
E—In the hands of disbursing agents	31,000,000

This gives a total of $272,000,000, but it is stated that the War Department has already expended $307,000,000 for air-

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planes and fields, not all of which appears in this tabulation.

There is a balance on hand of $433,000,000 not expended which gives a pretty general impression of how the Aircraft Production Board will be able to explain where the $640,000,000 has been expended without any profiteering.

Some conception of the size of the Signal Corps may be obtained from the following information. The personnel includes the following:

Military aviators	3,600
Graduates of aviation schools	6,100
Men examined and waiting..	5,000
Flying and non-flying officers in this country	15,000
Total Signal Corps roster...	133,000

It has been given out to-day that production for the week of April 27 was 136 combat and bombing planes, which is taken to mean the DeHaviland type fitted with Liberty engines. In addition there were 500 combat and bombing-plane engines. The first full boatload of Curtiss fighting airplanes was shipped to France last week.

Reports circulated in this country to the effect that contracts for 5000 Liberty engines have been canceled in favor of foreign contracts are untrue. No contracts for Liberty engines have been canceled.

Col. E. A. Deeds, who has been accused by Gutzon Borglum of being pro-German, and having changed his name from Dietz, and as having deliberately retarded aircraft production, welcomes the investigation, and states Borglum came to him last summer with a fish airplane plan based on a principle by which air was to be drawn into the fish from the forward end and blown out in the rear, the aviator staying inside and operating from there.

Deeds rejected the plan, which was also later rejected by the Aircraft Board. Deeds also had differences over money matters with Borglum a year ago regarding sculpture for Deeds' son's mausoleum, and with a memorial to Wilbur Wright which was to have been erected in Dayton. Deeds would like a military court martial investigation to clear his name.

Why Production Was Delayed

Airplane engine production is not where it was expected to be. Only one company, namely, Packard, is in quantity production on regular production basis. It has been turning out approximately 100 engines a week for some time, and should soon be gaining on this schedule.

It is known that its production has been hampered by difficulty in the manufacture of certain parts of the engine, delay having been caused, for example, by the problems involved in the manufacture of connecting rods. Other factories—for example, Marmon, Lincoln, Cadillac and Trego—have been making parts for weeks, and soon should be on a production basis. Marmon and Lincoln have built new factories and equipped these especially for this work. The Trego factory has been similarly fitted up. Without any serious unexpected delays it would seem that production should be tripled within the next couple of months.

There have been other factors that have held back the production of completed planes, these being delays on certain equipment, such as the machine-gun mounting referred to a week ago. The firms in the automobile industry cannot be blamed for the delay in production, as the question of machine-gun mounting was one that Washington decided upon. There were in one factory many practically completed planes which were held up for some months due to the factory not receiving from Washington the complete scheme of mounting all the equipment.

Have Been Delays

There have been delays in the development of the Liberty engine. It was unfortunate that the engine should have been approved at first without a pressure oiling system to the crankshaft bearings and the lower connecting rods. The first engines were produced without this. They burned out bearings in a matter of 8 to 10 hr. in endurance tests. Some engines were shipped abroad with the first oiling system. It is not surprising that some connecting rods have broken in French tests due to this. That was one of the troubles that perhaps should not have occurred. Many of our engineers knew better, but they were led to a compromise, on the ground that other engineers in the work had aviation engine experience and declared that the original design was satisfactory.

Perhaps this lubrication difficulty would not have been so serious had it not been that the engine first designed as a 330-hp. unit was stepped up to a 450-hp. rating. It is not surprising that connecting rods designed for 330-hp. should fail under a 450-hp. load. It is not surprising that an oiling system that was sufficient in one should fail in the other. It is not surprising that a radiator large enough for 330 hp. would not cool the 450-hp., and that heating should result.

It is useless to endeavor to cover up the fact that a great many changes have been made in the engine. It is reported that all told over 1700 changes have been made.

This figure is misleading.

Hundreds of these have been very minor changes in blue prints, which never affected anything further than blue prints. This does not conceal the fact that there have been hundreds of engineering changes.

American Engineers' Work

We could scarcely expect our engineers to become supermen overnight. They did the best that was humanly possible. They consulted with English engineers, French engineers, Italian engineers, and sent a commission headed by one of our leading engineers, Major Howard Marmon, to Europe to study conditions.

The Liberty engine was developed during his absence, and it is not surprising that when he returned from his investigation on the French and Italian fronts, and after visiting many airplane factories, he should recommend changes in the engine; and that French, Italian and English engineers should also have additional information to that available through the representatives of these countries in Washington when the Liberty engine work was started.

Other Engines Being Built

The airplane activities in America are not all confined to the Liberty engine. The manufacture of the Hispano-Suiza engine for training purposes has been going along in apparently a satisfactory manner. The Wright-Martin Co., manufacturing this engine, spent many millions in learning how to produce it and get into production. It is stated the figure approximates $10,000,000, and this is cited as an example of the difficulties involved and the time necessary for a factory schooled in high-class work to get into production.

The Bugatti, an Italian design of engine for scouting purposes, is being taken up, and some factories have been working for many months on getting it shaped up for production. The Bugatti is considered one of the best types of aviation engines built in Europe.

Development Takes Time

Reports from Europe tell of the great difficulties our Allies have had in the development of new types of aviation engines and of the long time required in such development. Fiat, which is one of the largest producers of automotive apparatus in Europe, has been known to have certain sizes of engines under development for considerably over a year, but is not yet willing to go into production on them. The same applies to some French engineering firms of the highest standing.

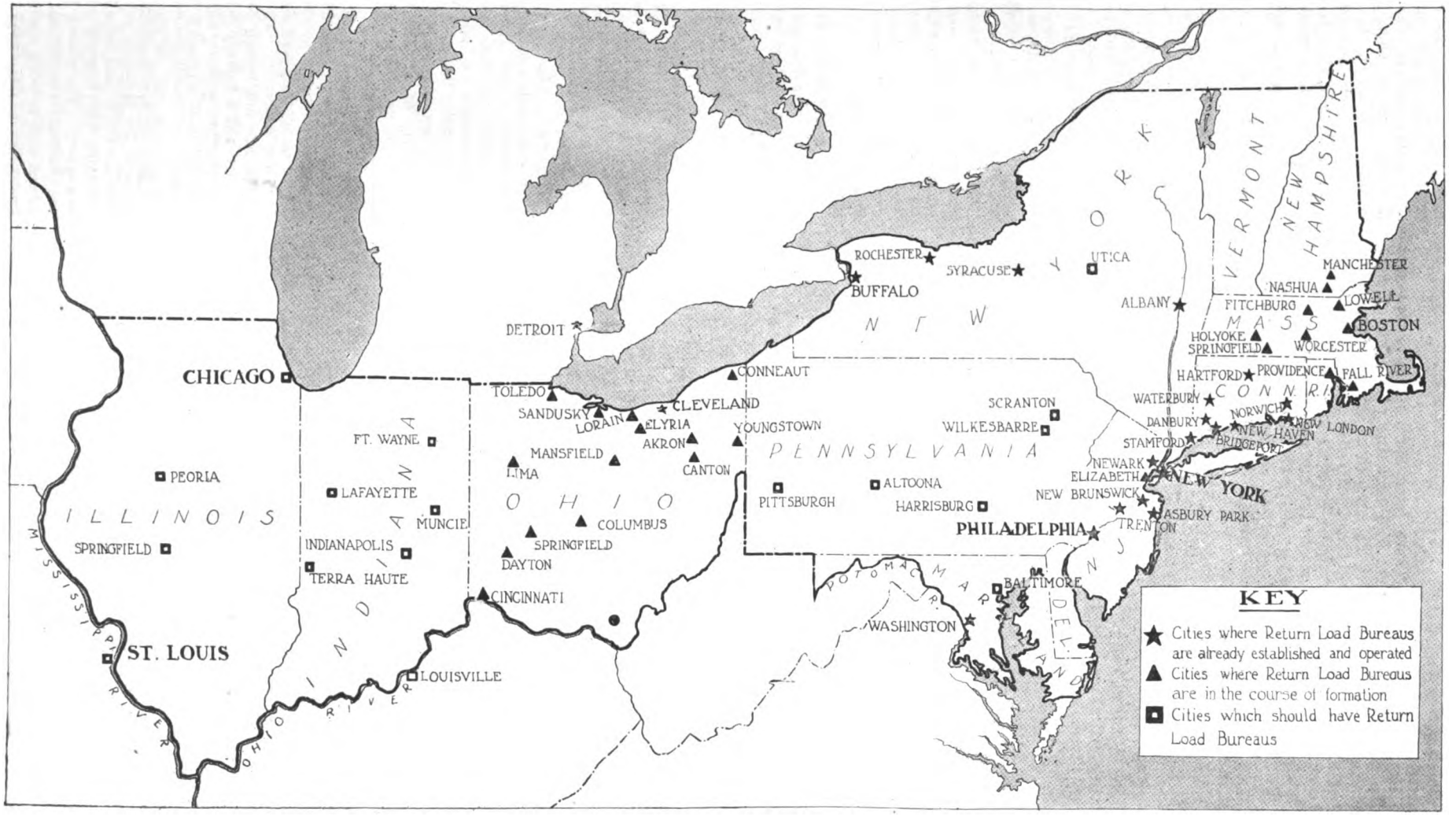
The criticism has frequently been made against the policy of the Aircraft Production Board in not distributing its aviation engine contracts to scores of firms in the automobile industry. The board has constantly defended its action on the ground that a factory designed for the production of a complete automobile would not be efficient in the production of Liberty engines.

Such a factory has a part for engine manufacture and assembly. It has a part for gearbox manufacture and assembly. There is another part for axle manufacture and assembly. All of these departments are not suited for engine manufacture, and a factory desirable for building aviation engines has to be specially laid out and equipped for that line of work.

There have been many complaints that three of the factories getting Liberty engine contracts had not only to build their factories but entirely equip them with machinery. The reason for this was that the Aircraft Production Board was convinced that to build engines in production quantities, as demanded by Europe, could only be accomplished by such a policy.

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Return Loads Bureau Development at a Glance



The area in which it is planned ultimately to establish statewide Return Loads Bureaus extends clear east from the Mississippi and north of the Ohio and Potomac Rivers to New England. This territory includes the states of Illinois, Indiana, Ohio, Pennsylvania, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, Massachusetts, and the lower portions of Vermont and New Hampshire. As will be noticed, those bureaus actually established are so far along the Eastern seaboard. Connecticut is the only state with a statewide organization at present actually in operation

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34 Cities Have Return Loads Bureaus

Six States Establish Headquarters and Movement Is Spreading—New England Linked Up

NEW YORK, May 13—There are today 34 cities in the United States with regularly established Return Loads Bureaus, and the movement is spreading to include many others.

During the past 2 weeks the greatest development has occurred in the State of New York, where bureaus have been established in New York City, Albany, Buffalo, Rochester and Syracuse. In New York City the bureau has been established by the Merchants' Association, which has appropriated $5,000 for carrying on the work. The Merchants' Association, however, is not co-operating with the organizations of the other bureaus in the upper part of the state nor with other associations which are endeavoring to inaugurate similar bureaus in the Hudson River valley between New York City and Albany to tie up return loads transportation between New York State and Connecticut.

Eventually Return Loads Bureaus will be established in the entire territory east of the Mississippi and north of the Ohio and Potomac Rivers, which includes the States of Illinois, Indiana, Ohio, Maryland, Delaware, Pennsylvania, New York, New Jersey, Connecticut, Rhode Island, Massachusetts and the lower halves of Vermont and New Hampshire.

For the present the Highways Transport Committee in Washington is confining its efforts to the establishment of Return Loads Bureaus on the Eastern seaboard, since it is in this territory that the greatest amount of congestion is liable to result during the coming winter. In this area there are now in operation thirty-four Return Loads Bureaus in the States of Connecticut, New York, New Jersey, Ohio, Michigan, the District of Columbia and Pennsylvania.

New Jersey Maps Routes

One of the most important developments of the system of the Return Loads Bureaus which is being perfected in New Jersey for operation between New York City and Philadelphia was inaugurated within the past few weeks by the officials of the Motor Truck Club of New Jersey in Newark, in co-operation with the New Jersey Assn. of County Engineers, in designating certain routes through the state connecting New York and Philadelphia as Return Loads Routes, and for the strengthening of bridges along these routes wherever necessary to carry a maximum load of 30,000 lbs. as allowed by the New Jersey Motor Vehicle law.

These suggestions were made by T. J. Wasser, County Engineer of Hudson County, who was brought into conference with the Motor Truck Club's committee by Charles T. Kavanagh of Bayonne, the committee chairman. Wasser is known as the father of the New Jersey motor truck law, as he was chairman of the special commission which drafted the measure under appointment of State Motor Vehicle Commissioner Dill.

The routes chosen were what are known as Route No. 1 and Route No. 13 of the New Jersey highway system. Both routes are the same from New York to New Brunswick, traversing the Lincoln Highway. From New Brunswick, Route No. 1 goes by way of Hightstown to Trenton, while Route No. 13 takes a course through Kingston, Princeton and Lawrenceville to Trenton. The Lincoln Highway is again followed from Trenton to Philadelphia.

Other routes to various other centers in New Jersey, such as to Camden, Atlantic City, Asbury Park, Morristown, etc., will be selected later. Coincident with their selection will be started an agitation to make improved highways of them where such condition does not now exist. Also the agitation will be continued to keep the roads always in good repair.

Return Loads Bureaus

NEW YORK

Albany	Chamber of Commerce
Buffalo	Chamber of Commerce
New York City	Merchants' Association
Rochester	Chamber of Commerce
Syracuse	Chamber of Commerce

CONNECTICUT

Bridgeport	Chamber of Commerce
Bristol	Chamber of Commerce
Danbury	War Bureau or C. of C.
Greenwich	War Bureau
Hartford	Chamber of Commerce
Manchester	War Bureau
Meriden	Chamber of Commerce
Middletown	War Bureau
New Britain	Chamber of Commerce
New Haven	War Bureau
New London	War Bureau
Norwalk	War Bureau
Norwich	Chamber of Commerce
Stamford	Chamber of Commerce
Waterbury	War Bureau

NEW JERSEY

Asbury Park	Board of Commissioners
Carney	State Council of Defense
Dover	Chamber of Commerce
Garfield	Police Station
Jersey City	Chamber of Commerce
Millville	Maurice River Transportation Co.
Montclair	Police Department
Newark	Motor Truck Club of N. J.
New Brunswick	Home Defense League
Trenton	Chamber of Commerce

PENNSYLVANIA

Philadelphia	Chamber of Commerce

MICHIGAN

Detroit	Chamber of Commerce

OHIO

Cleveland	Chamber of Commerce

DISTRICT OF COLUMBIA

Washington	Chamber of Commerce

The fact that the county engineers, under whose supervision road work is done in New Jersey, is co-operating in the plan, practically assures that the work will be done. The same officials have charge of the bridges throughout the state, and their co-operation assures bridges substantial enongh to withstand 30,000 lbs. This action is one of the biggest road improvement projects that has taken place in New Jersey since the advent of the motor truck.

The New England Highways Return Loads Association was formed in Providence, R. I., on April 18 for the purpose of establishing Return Loads Bureaus throughout all of New England, but more particularly at the present time in Rhode Island and Massachusetts. Connecticut's present very efficient bureau, with fifteen individual bureaus located in the large industrial centers of the state, will co-operate with those to be established in Massachusetts and Rhode Island.

This will result in the entire New England district being served by its motor-trucking equipment to the best possible advantage during the summer of 1918 and in the winter of 1918-1919. Officers of the new association were elected, as well as an executive committee of six, made up of two members from each of the States of Connecticut, Massachusetts and Rhode Island. The working organization is now being planned and letters are being prepared to be sent out to shippers and truckmen for the necessary information.

Detroit Dealers in Red Cross Drive

DETROIT, May 13—The Detroit Auto Dealers' Association will participate in the coming patriotic fund campaign. Three teams having been named from among the automobile men to work with the division under the direction of Howard E. Coffin. In the former drives the dealers have been very active, but not as an association unit as in this case.

W. L. Walls of the King Auto Sales Co., and Walter J. Bemb of the Bemb-Robinson Co. are captains of ten-men teams from the passenger car establishments, and John H. Thompson of the Thompson Auto Co. will direct the energies of the truck men, who have a team of their own. The men comprising the various teams are:

W. L. Walls, captain, G. O. Simons, S. C. Comstock, Wayne Murray, J. E. Morehouse, L. R. Fast, George W. Franklin, George H. Zuver, Thomas Walker, E. L. White. J. H. Thompson, captain, R. L. Owen, W. J. Gordon, Harry R. Graham, J. C. Ayers, A. H. Murray, L. F. Mullin, Frank Foster, G. E. Bleil, William F. V. Neumann. W. J. Bemb, captain, J. A. Schulte, A. L. Zeckendorf, E. S. Hilton, H. S. Quinn, C. E. Baker, C. C. Starkweather, C. E. Dawson, W. J. Doughty, H. H. Shuart.

Have You Seen The Story on Page 38

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Four of Seven Moutier Brothers in Draft and None Claims Exemption



William A. Moutier



Frank L. Moutier



J. Louis Moutier



Bertram G. Moutier

Detroit Organizes For Great Red Cross Drive

Whole City, Including Factories, to be Worked Under Complete Zoning Plan

DETROIT, May 13—To do away with a series of war donations one coming on top of another—Detroit has combined all activities into one and will launch a Red Cross campaign to be known as a Detroit Patriotic Fund May 20, coinciding with the national campaign for the American Red Cross. Detroit has pledged to subscribe $7,000,000. The committee has divided the city into ten sections, with a district chairman for each. The Factory Division, under supervision of Witter J. Peabody, will work on the same basis as in the Liberty Loan drive, and managements of plants will be asked to underwrite the contributions of employees.

A schedule of donations for factory workers has been worked out that is considered equitable in every way. It calls for a minimum gift of $1 per month for those earning up to $20 per week; $2 per month for those earning $20 to $30; for those earning $30 to $40, $2.75 per month; $40 to $50, $3.50; $50 to $60, $4.25; $60 and over, $5 per month.

For those better able to give, another schedule has been worked out. Up to $5,000, 3 per cent; $10,000, 4 per cent; $20,000, 5 per cent; $50,000, 6 per cent; $75,000, 8 per cent; $100,000, 10 per cent; $200,000, 12½ per cent; $300,000 and over, 15 per cent.

These schedules are based on an estimated annual income for Detroit and Wayne County of $325,000,000, of which $200,000,000 is received by persons earning $3,000 and under. They are not to be regarded as assessments in any sense, but merely as a guide. Some will give less, others more than the schedule calls for, but if the average is maintained in each class the allotment money can be raised.

Solicitation plans follow two different but interrelated lines—geographic and functional. The geographic division of the territory has ten general districts laid out in such manner that each holds about the same number and value of prospects. Prospects will be solicited at places of business primarily. Individuals and not corporations will be the basis of solicitation, although corporation gifts will not be declined if tendered.

In charge of each of these districts is a district chairman, and each will have 10 to 20 teams.

Second is the functional division of solicitation, of which individual givers and industrial plants are a part. The supervisor of industrial plants, in conjunction with the Manufacturers' Committee, has developed a plan for organized solicitation in factories. The primary essential of the plan is that work be done in co-operation with factory managements. The management should be asked to assign to a team at work in any plant some official to act as a member of the team and give active help in working out details of solicitation in the factory.

It is suggested that each factory team carry with it a speaker. Mass-meetings should be held. The management will act as a collector for the fund, deducting weekly amounts of pledges from the donor's wages and transmitting it monthly to the Detroit Patriotic Fund.

Advertising in sufficient quantities has been supplied, as well as 300,000 buttons, 5,000 factory posters, 10,000 6-in. emblems or stickers and 250,000 handbills in all principal languages.

Red Head Men in Convention

NEW YORK, May 13—The salesmen of the Emil Grossman Mfg. Co. have been in convention here May 10-13. The convention included meetings at the Astor, visits to the company's plant, to the J. Walter Thompson advertising agency, and to the Trenton pottery where porcelains are made. Those who attended were:

Emil Grossman, president; L. M. Schwartz, vice-president; J. N. Lowe, H. G. Wedler, W. M. Farans, L. Rosenberg, R. Cony, M. A. Edlis, F. R. Dworak, C. B. Charmatz, C. E. Lund, G. S. Salomon, Jos. Sacks, Chas. Weinberg, S. S. Frank, S. Prince, L. V. Hansen, J. Burke, R. L. Thornton, Thos. J. Irving, S. H. Richey, D. M. Lay, John U. Reber, R. Isaksen, J. F. Melzer, W. H. Grainger.

4-7ths of Organization Will Follow the Flag

Four of the Seven Moutier Brothers in Selective Draft, None Claims Exemption

PEORIA, ILL., May 13—Four of the seven Moutier Brothers who operate the Crown Auto Co. in this city are in the selective draft, three of them are in class A-1 and one is in B-4. In order to readjust their business to war time conditions, they are selling one of their branch organizations and are making numerous changes in the headquarters outfit here. Those in class A-1 are Bertram G. Moutier, who is business manager and buyer; Frank L. Moutier, manager of the branch in Eureka, Ill.; William A. Moutier, superintendent of the electrical department; the brother in class B-4 is J. Louis Moutier, manager of the LeRoy branch. All of the brothers have received thorough mechanical training and their organization is considered one of the best selling business and mechanical outfits in the central west. Not one of the brothers is claiming exemption.

Michigan Cancels Tractor Contract

DEARBORN, MICH., May 6—Because of the advanced season and the fact that much of the farmers' work was well under way, orders for Fordson tractors which were contracted for by this state did not come in as promptly as anticipated. The War Preparedness Board has canceled its contract with Henry Ford & Son. No orders were accepted after 12 noon April 27. Up to date Ford & Son received orders totaling 567 tractors. A number of orders held back at the board are still expected, which will increase this sum slightly. Sixty-two counties have been purchasers, Wayne County leading with a total of fifty-one tractors. Future requirements of the farmers will be handled through agents, of whom there are seventy appointed already. No price has been set as yet, but indications are that the retail price will be 800.

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Close Business for 6 Weeks to Harvest

Whole Trade in New Mexico Town Votes to Shut Shop Beginning June 15 to Reap Wheat

CLAYTON, N. M., May 13—The Clayton Garage Dealers' Association has voted to close up the motor car business for a month or six weeks, beginning June 15, in order that all connected with the trade may help harvest wheat.

Only so much of the garages and salesrooms will be kept open as is necessary for maintaining a minimum of business.

The association is notifying other associations of what it has done, and is asking that similar action be considered in other sections. (Motor World would like to hear from other associations and readers on this subject.) The letter to other organizations, explaining the action, follows:

Gentlemen: At a regular meeting of the Clayton Garage Dealers' Association, held Tuesday, April 30, 1918, a motion was made, seconded and carried that you gentlemen be informed of the following resolution: We are engaged in the greatest conflict in the history of America. Between two and three million men are in arms. Five million more men are employed in shipbuilding, munition factories and industries pertaining to war. Behind these men one hundred million anxious hearts yearn for the boys on the battle front. In them, we have staked the future liberty and justice of the world. In us they have entrusted their lives for munitions and supplies. To furnish them with sustenance is our duty and should be our pleasure. Our failure to supply them with plenty would brand us as slackers and traitors. To have food and fail to take care and preserve it would be the greatest sin in the eyes of our maker.

Therefore, be it resolved that the Clayton Garage Dealers' Association close their shops and business houses beginning June 15, 1918, and continue the same to be closed from one month to six weeks; taking all able bodied owners, managers, and employees for service in the wheat field as the harvest so demands. And be it further resolved that each garage keep its office open selling supplies, repairs and storage; leaving one or two men who are not able bodied, and women, to take care of such trade. Be it further resolved that we shall advertise from now until harvest that our shops will be closed at that time, and until we all return when we shall resume our work as before. Be it further resolved that we take this up with other dealers' associations requesting that they earnestly consider the move and loyally support our Government by releasing men from the third largest industry in the world to preserve the wheat crop and doing our part for the boys over there.

Very truly yours,
CLAYTON GARAGE DEALERS' ASSOCIATION,
Clayton, N. M.
Allen Wikoff, Pres.

Deny Hal Reorganization

CLEVELAND, May 2—The rumor that there will be a re-organization of the Hal Motor Car Co. has been denied. Attorney O. O. Vrooman, who was trustee in bankruptcy of the company states: "As trustee I sold the assets of the company to a Chicago auction house and they have sold the assets on their own account. There will continue to be a Hal Motor Car Co. for the purpose of repairing and providing parts for Hal cars previously sold, but to the best of my knowledge there will be no re-organization of the company and no further production by it of new Hal cars."

N. A. D. A. To Meet May 17 and 18

ST. LOUIS, May 12—President Vesper of the National Automobile Dealers' Association said to-day that he expects every member of the Board of Directors of the association and every member of the War Service Committee to attend the special meeting to be held May 17 and 18 at the Missouri Athletic Association clubhouse.

"This meeting," said Vesper, "will have as its topic the arranging of means to carry out the six suggestions made by the War Service Committee and which have been accepted by the Government. The men of the trade are beginning to realize that it is life or death and that we can live only by practicing strict economy, because if we do not do this and we have money enough to bridge over, the government is likely to close those who ignore suggestions.

"We are in the position of the man in a sailboat who sees a storm cloud coming rapidly. The only thing he can do is to trim his sails and get ready. If the storm hits him, he has a chance to live. It is passes by, he has not lost anything except a desperate risk. But this storm is not going to pass by.

"The trade realizes that the storm is not going to pass over us and that is the reason we have had acceptances from practically everybody."

Grand Rapids Joins N. A. D. A.

ST. LOUIS, MO., May 12—The Grand Rapids, Mich., Automobile Dealers' Association has come into the N. A. D. A. with its entire membership.

Class B Sterlings En Route

MILWAUKEE, May 11—Thirty Class B military trucks, assembled by the Sterling Motor Truck Co., Milwaukee, were dispatched from the plant on Thursday, May 9, under their own power to Baltimore, Md., in charge of Capt. Alex Brunson and his company of 86 men, which has been stationed at the factory for the last three weeks to study the construction and maintenance of the trucks. The trucks were accompanied by three Dodge officers' cars. This is the second convoy of military trucks to be dispatched overland from the Sterling factory, ten Class B cars having recently been sent to Camp Grant, Rockford, Ill., in charge of a detachment of soldiers from the camp. This trip was made in less than two days.

Now Holley Carburetor Co.

DETROIT, May 11—The name of the Holley Kerosene Carburetor Co. has been changed to Holley Carburetor Co., which has just been incorporated with a capitalization of from $100,000 to $150,000.

13 Miles of Bad Road Mean Side Trip of 300

But Texas Is Going to Improve It Thereby Opening Gateway Across Rio Grande

KANSAS CITY, May 13—Thirteen miles of roads are to be improved this summer which will prove of tremendous value to an area as large as several eastern states but forming only a small corner of Texas. This thirteen miles is the shortest distance and most available route across the sand dunes northward from the Rio Grande valley, and will be one element in the motor vehicle highways connecting Brownsville with Corpus Christi and San Antonio.

The Rio Grande valley, in the southern part of Hidalgo County and eastward to Brownsville, has been settled largely by people from the middle western farming states who had money and sought the ideal conditions for agriculture. They have paid two to three hundred dollars an acre for the land; raising crops by irrigation. Most of them have motor cars, of the higher-priced variety. On some of the smaller farms, where deep plowing is not necessary, there are tractors. These are the kind of people who want to do things in the very best way.

Detour of 300 Miles

But the district has been isolated from the rest of Texas by the sand country in the north. The people with their high-powered motor cars have had to go two or three hundred miles out of their way to get to the more strictly settled portions of Texas. The King of Trails highway, extending due north from Mt. Allen in Hidalgo County, through Brooks County to Corpus Christi, is routed over this thirteen-mile stretch of sand road.

The road is now impassable. But Brooks County, in which it is situated, has $35,000 in the treasury to arc-surface it; has $20,000 of federal aid and $5,000 of state aid available. It will build this road this summer and the people of the Rio Grande valley can motor over to Corpus Christi and San Antonio. The latter is 300 miles and the former is 150 miles by this road from Brownsville.

Federal aid was granted to this road because it is part of the post road designated by the government, on the Jefferson Davis Memorial Highway.

Brooks County is a dry country. It has had little more than a sprinkle of rain for three years until this spring. It has good moisture now and a big crop of cotton is expected. The road will be a prime essential in moving the cotton out and bringing in to the farmers the products that they need.

More than that, the cotton crop will give the farmers the compensation they have been needing for their valued persistence in the task of raising crops in that country. The road is expected to do a great deal toward the building of the country, as well as providing a means of communication between the irrigated

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area to the south and the better known parts of Texas to the north.

Hidalgo County takes care of its roads in great shape. They are rolled and dragged after every rain. Since rains do not come frequently the people of the county flood the roads occasionally from the irrigation ditches and then drag them. These roads are as hard as rock and are perfect highways.

Changes in Price

NEW YORK, May 13—The following changes in price have been made during the past week:

	New Price	Old Price
Daniels, all models..	$3,500	$3,250
Dixie, 2 and 5-pass...	1,095	995
Dodge, touring.	*985	885
Sedan	*1,425	1,350
Peerless, 7-pass. touring and 4-pass. roadster	2,550	2,340
Coupe	3,050	2,850
Sedan	3,250	2,990
Velie, model 38, 2, 5 and 7-passenger ..	1,390	1,340
Sedan	1,935	1,885
Model 39, 7-pass..	1,645	1,595

*Effective June 1.

Expect Record Michigan Registration

LANSING, May 8—According to present indications more licenses will be issued in Michigan this year than were issued in 1917, when the state department licensed 227,000 motor vehicles. Owing to the war it was believed that fewer cars would be operated this year, but already 206,000 permits have been granted. It is now estimated that the total licenses for 1918 will exceed 250,000.

Here's the Community Dealer

MILWAUKEE, May 13—George W. Browne, Automobiles, Inc., 510-520 Broadway, Milwaukee distributer of the Overland and Willys-Knight, has announced a plan of establishing a system of community dealers. The first appointment is that of the Edgar F. Sanger Co., 156 Farwell Avenue, Milwaukee, which will act as authorized retail dealer and service station for the Willys line in the Milwaukee county territory. Other community dealers in various sections of the city and country will be appointed shortly.

Goodrich Publishes Annual Truck Book

AKRON, May 7—The 1918 edition of the annual truck book, "Motor Trucks of America," published by the B. F. Goodrich Co., is ready for distribution through the company's branches. This book is for the benefit of truck manufacturers, their agents and salesmen, as well as the prospective buyer of trucks. The photographs and specifications shown are furnished, checked and approved by manufacturers. They are arranged to permit easy comparison of the details of any two makes.

Cattle by Thousands Saved by Motor Trucks

Farmers Find It Impossible Without Trucks to Get Sufficient Feed—Prove Economical

DALLAS, May 10—Motor trucks not only have proved profitable investments in south, southwest and west Texas, but they have saved the lives of many thousand head of cattle and sheep in this great cow country. In fact, it is estimated that tens of thousands of cattle have been saved.

For without motor trucks that are in service from railroad points enough feed never could have been hauled across the plains to the great herds of cattle in this drouth-stricken section of the cattle region of Texas. Cattle men and business men of this region of the state are of one accord that the motor truck has saved the day. In addition to hauling the feed, many trucks have been used in hauling water to the cattle. In other instances the motor trucks have been used to haul the cattle from the drouth-stricken region to green fields.

As a result of this work there are few cattle ranches that are not provided with from one to five trucks. The owners say they are paying investments, and they intend to buy more. In addition to this, in that section of the state many men have quit other lines of business, have organized truck companies, and are using these in freighting.

Not only have the trucks proven of vital importance in the transportation of all kinds of foodstuff, but they have proven to be more economical by far than horse or mule teams, according to the cattle raisers. Also the individuals and concerns engaging in the trucking business, and charging so much a ton-mile, according to loads, have made a rich harvest. Men whose farms failed because of the drouth have gone into service on the trucking lines and the cattle raisers say with trucks they are getting their foodstuffs much cheaper than they could before.

More Room for Martin-Evans

NEW YORK, May 13—The Bolton-Wechtel Co., Inc., 1188 Bedford Avenue, at Putnam Avenue, Brooklyn, has purchased the battery, magneto and speedometer portion of the business of the Martin-Evans Co. The building will be remodeled so that service can be given on starting and lighting systems, and the Martin-Evans Co. will move to a new five-story building now in process of construction at Bedford Avenue and Bergen Street.

Munitions Money Makes Buyers

PHILADELPHIA, May 13—Shipbuilding and war munition plants within a radius of 25 miles of this city have increased the number of men earning a salary of $7,000 and upwards a year to 500,000, and this has proved good for the automobile trade, dealers assert. There are more than 300,000 prospective buyers in the territory. In 1917 alone, Pennsylvania increased its motor vehicle registration by 94,505. Nearly 500,000 motor vehicles are registered in this territory and more than $4,000,000 was paid in license fees in 1917. At the present rate of registration it looks as if these figures would be greatly exceeded.

Stewart Tank Patents Valid

CHICAGO, May 7—That the Stewart-Warner patents, covering its vacuum feed system are valid but have not been infringed by the Thermo-Vacuum System, is the gist of a decision which has just been rendered. The suit was brought by Webb Jay and the Stewart-Warner Speedometer Corp. against Frederick Weinberg and the Auto Parts Co., Detroit, and charged infringement of patents No. 1,067,814, issued to Higgonson & Arundel; 1,132,273, to Jay; and 1,134,457, to Jay, upon a vacuum tank for automobiles. Judge Sanborn, in the United States District Court for the Northern District of Illinois, rendered the decision. The Stewart-Warner Corp., which alleged that ten claims of the two Jay patents were infringed, will appeal.

Ship Cars on Barges

LOUISVILLE, May 13—For the first time in the history of local inland waterway transportation automobiles are being shipped South on barges. The towboat John Barret passed down the Ohio River this week with three big barges loaded with 400 new machines bound from Cincinnati to Memphis, Tenn. A large number of the cars were sent from Detroit to Pittsburgh, and there loaded on the barges and taken down the river to Cincinnati.

Kansas City Dealers Buy $3000

KANSAS CITY, May 13—The Motor Car Dealers' Association of Kansas City bought $3,000 worth of Liberty Bonds of the third issue out of its treasury. The association already owns one thousand dollars' worth bought of the second issue. No campaign was made among the members this year because of the different plan of the central campaign committee; during the previous Liberty Loan campaigns, motor car dealers subscribed at one of their meetings, individually, for $15,000 worth of the bonds.

Ohio to Complete Work on National Road

COLUMBUS, May 8 — Instructions have been issued by Ohio officials to finish the gaps of the National highway between Columbus and the Ohio River, as several stretches are still to be improved to make an ideal highway to the east. Convicts will be used to complete the work, which will be rushed as rapidly as possible. In Muskingum county a stretch of 12 miles will be paved with brick and in Guernsey county crushed stone will be used.

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Japan Will Subsidize Both Cars and Trucks

Government to Encourage Ownership of Foreign Vehicles—Stimulate Production

TOKIO, JAPAN, April 9—Special Correspondence.—The government of Japan is to help its citizens buy American motor cars and trucks by granting them a purchasing subsidy of not over $500 and in addition, for 5 years an annual maintenance subsidy not to exceed $150. In return these cars may be collected by the Minister of War for military service when needed. Each car or truck to qualify must have a carrying capacity of at least one English ton, 2240 lb.

The Diet in Tokio recently passed the military motor car subsidy law, and it was at once promulgated by the Emperor, the Premier, Count M. Terauchi and the Minister of War, K. Oshima.

Besides buying imported cars, the law encourages Japanese to make cars. A manufacturing subsidy of $1,000 or less is to be granted on such cars as qualify, and which are made by Japanese or by Japanese-owned corporations having their factories in the Empire.

There are now three concerns in the Empire classed as automobile manufacturing companies. Furthest advanced is the South Manchuria Railway Co. which, at Dairen, has built a factory and turned out four cars, which are now being subjected to experimental tests.

The two largest shipbuilding companies in Japan are now erecting automobile factories. The Mitsubishi Dock Co. at Nagasaki will construct airplane motors as well as cars, while the Kawasaki Dock Co. at Kobe will build only motor cars. In addition, the Japan Car Works at Nagoya is assembling cars, all the important parts of which have been imported from America. Motor car manufacturers are in a position to judge for how long a period the great bulk of the subsidies will go to American cars.

In time of war, when the cars have been collected and are in military service, their owners are to be given a "certain compensatory amount of money" by the Minister of War.

Subsidized cars may not be exported or sold or rented to foreigners and may not be given as security.

Frequent inspection of the cars by mechanics of the War Department will detect faults which will be ordered corrected within a certain period. Should the repairs not be made on time, the owners "shall be disqualified and suffer suspension of the right to the subsidy."

A supplementary article of the law says: "A person who posseses foreign made motor cars which have a capacity equal to that of the motor cars qualified by the law, and who uses the cars himself or allows a third person to use them, shall be granted a subsidy of not to exceed $500."

In Japan, horses are scarce and most of the trucking is done by husky youths who pull two-wheeled carts without sideboards. But labor is in strong demand now in Japan, and the use of American trucks would release thousands of youths for service inside factories, instead of on streets.

The time has come in Japan when the purchase of motor trucks is profitable and with a new subsidy, it is expected that a good field for American trucks will open up in Japan, especially in Tokio and in Osaka, the Pittsburgh of the Empire.

The sale of passenger cars also will be promoted and, by the way, the open car is a rarity in Japan; because of the wind and dust the glass enclosed cars have the call.

Truck Production 100% Increased in 3 Months

NEW YORK, May 13—During the first 3 months of 1918 the production of motor trucks by members of the N. A. C. C. increased 100 per cent over the production of these companies a year ago. With this gain in production it will not be surprising if the total output of motor trucks represented a higher value for 1918 than the output of passenger cars, which would represent a complete reversal of figures, because heretofore the production of motor cars has been many times greater than that of motor trucks.

On a basis of producing 310,000 trucks this year at an average price of $2000 the total production value would be $640,000,000. There is no figure as to what the output of passenger cars will be, but during the calendar year it will be much less than a year ago. On a basis of 800,000 passenger cars at an average price of $700, the total value would be $560,000,000.

At the regular meeting of the National Automobile Chamber of Commerce four new truck concerns were taken in as members, namely, Sanford Motor Truck Co., Syracuse; United Motors Co., Grand Rapids; Ward Motor Vehicle Co., Mt. Vernon, N. Y., and the Standard Motor Truck Co., Detroit. It is expected that truck membership in the chamber will increase rapidly now that there are practically two memberships, one for the motor truck makers and the other for motor car makers.

Urge Federal Road Program

NEW YORK, May 13—The N. A. C. C. at its board of directors' meeting last week adopted a resolution urging the Federal Government to adopt a highway program which will admit of the highways carrying their proper share of the transportation burden of to-day. A report from the roads committee of the chamber showed that 400,000 motor trucks are now in service, and that the first indication of the part the motor truck is going to play is the assurance that short-line railroads are going out of existence and that no more of such will be built.

Make Common Carriers of Trucks in Nebraska

Railway Commission May Take Supervision of Regularly Established Routes

OMAHA, May 13—Regulation of automobile truck lines by the Nebraska state railway commission as common carriers after having been regularly established is forecast in the statement issuing from the office of the commission to-day.

Willam S. Forword of Omaha, indicating to the commission that a daily truck service is contemplated for early establishment between Omaha and certain neighboring cities and towns, asked the commission whether the service given by such a line in hauling freight, and the rates to be charged, come under its jurisdiction. The reply was that trucks so engaged would be considered common carriers, and regulations applied accordingly.

Motor truck service has been given considerable attention recently by the Omaha Chamber of Commerce, but the fact that road conditions in Nebraska are such as now obtain have tended to discourage those who might otherwise be interested.

It is pointed out that motor truck service, on order to be maintained upon any semblance of schedule, must be assured permanent and dependable roads over the routes covered. Nebraska roads have not been of this nature over any appreciable section of the state. But with the awakening of interest in federal aid for road building during the past year, and the advent of the road-working season, considerable advancement in this respect is anticipated during this year, and the prospects for motor truck routes correspondingly brightened.

In this connection the principle of the Return Load Bureau as a measure to conserve labor and relieve rail traffic congestion is also being freely advocated. Commercial and civic bodies are indicating a steadily increasing interest in this matter.

May Revive A and AA Trucks

WASHINGTON, May 13—Despite the many rumors and predictions that the A and AA standardized war trucks are to be shelved, it now appears likely that they will be a part of the military program as originally planned. It is definitely known that certain officials favoring standardization of trucks have influenced the Secretary of War, Newton B. Baker, who is an exponent of standardization, to look into the truck program. It is known that Secretary Baker favors the standardized truck program.

BROOKLYN, N. Y., May 14—The Goodyear branch at 1172 Bedford Avenue, will be discontinued after May 15 and the business will be handled from the New York branch at 10 Central Park West and the Long Island City branch.

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Manufacturers Pledge Government Every Aid

No Curtailment Questions Entirely Answered—Steel Needed for Ship Program

NEW YORK CITY, May 13—The question of curtailment of the motor car industry by the War Industries Board at Washington is in statu quo at the present time.

Members of the motor car industry met in Washington Monday and Tuesday a week ago and on the following day the Board of Directors of the National Automobile Chamber of Commerce deliberated on the subject. The committee headed by W. C. Durant, representing the motor car industry, is handling the matter and nothing definite is known as to when the case will again be taken up with the War Industries Board.

According to the agreement made between the industry and the War Industries Board, the present 30 per cent curtailment period expires July 31, and in accordance with that agreement the industry must arrive at some conclusion with the War Industries Board for the 1919 season.

The steel situation is the pressing one and whatever curtailment for next year is decided upon will be dictated very largely by the supply of steel. The Shipping Board, under Edwin N. Hurley, has announced that it is building 4,000,000 tons of shipping, but Chas. M. Schwab, who has assumed charge of ship production, declares that he is going to build 6,000,000 tons. This will mean a heavy drain on the steel resources of the country.

The proposal not to ship steel to any other industries for a period of 60 days seems to have been primarily intended to stock up the shipyards with steel so that next winter there will not be any holding back of the shipbuilding program because of a failure of our transportation system similar to that of last year. The War Industries Board is determined that those primary war industries such as shipbuilding, etc., will be cared for no matter how other industries have to suffer.

The N. A. C. C. has given out the following statement, indicating that it is working in harmony with the War Industries Board on the question of curtailment:

Representatives of the National Automobile Chamber of Commerce, W. C. Durant, John N. Willys, John F. Dodge, Walter E. Flanders, C. C. Hanch, and Hugh Chalmers, have just completed a three-day session reviewing with the War Industries Board, the War Department, the Railroad Administration and other government departments the situation in regard to the supply of raw materials and transportation.

After a thorough investigation the committee was convinced that the government demands were very great and conceding that these demands should be given unquestioned priority, volunteered all possible assistance and pledged the entire resources of the industry to speeding up the war program; keeping in mind at the same time its accomplishment, with as little disturbance to general business as possible.

Until the government needs are more definitely known, the industry, in addition to the manufacture of airplanes, tanks, tractors, shells, mine-anchors, helmets and other munitions, will apply itself to helping to solve the great problem of transportation which is directly in its line.

New York Now Has Lamp-Testing Law

Statute Provides That State May Test Anti-Glare Devices That Are Submitted to It

ALBANY, May 13—Makers and sellers of lenses and other anti-glare devices may now learn definitely from the state whether their devices are within the headlight regulations. The provision is Subdivision 6 of the recently passed amendment to the highway law, relating to lights on motor vehicles.

The law provides that lamps shall not exceed 24-candlepower, that rays shall not rise above 42 in. at 75 ft., that the illumination shall fall 10 ft. to the sides at 10 ft. ahead, that the light shall be visible 250 ft. ahead and in unlighted streets and on country roads the lamps shall make objects visible at 250 ft. On trucks of 2 tons and over, so governed as not to exceed 15 m.p.h., the lamps shall be visible 200 ft. and shall illuminate unlighted roads for 150 ft. Taillights shall make the license number legible at 50 ft.

The testing subdivision follows:

"Any person may submit to the secretary of state a device for controlling the front lights of motor vehicles so that they shall comply with the provisions of this section while the vehicle is proceeding, together with an application that such device be tested as prescribed by this section. Such applicant shall pay to the secretary of state a fee of fifty dollars. Thereupon the secretary of state may submit such device to a qualified technical expert or experts from the physical laboratory of a university or technical school within the state of New York, under the jurisdiction of the university of the state of New York, with a request that it be tested as to its compliance with the provisions of this section. Upon notice from such technical expert or experts that such test has been made and that such device complies with the provisions of this section, the secretary of state may issue a certificate to the applicant describing the device and certifying that such test has been made and that the device complies with the provisions of this section. The expense of such test by such technical expert or experts shall be paid from the fee collected from the applicants, and the balance of such fee, if any, shall be paid into the state treasury.

Truck Name Changed Back to Stegeman

MILWAUKEE, May 13—The Stegeman Motor Truck Co. has changed the name of its six-cylinder truck from Hercules back to its original cognomen, Stegeman.

During First 3 Months 38,000 Cars Go Overland

Drive-aways by Dealers Relieve Railroads to the Extent of 10,000 Freight Cars

NEW YORK, May 13—How the motor car industry is co-operating in conserving transportation is shown by the fact that in the first 3 months of 1918 38,000 motor cars were driven over the roads to the dealers and distributers by eight of the larger manufacturers. This represented 33 per cent of their production. This number of driveways relieved the railroads to the extent of 10,000 freight cars.

Reports from different companies show that a large percentage of their cars are being driven away overland within a radius of 500 to 600 miles. During the past 60 days the Mitchell company has through its dealers driven away 33 1/3 per cent of its production, most of the cars going to Iowa, Missouri, Ohio, Kentucky, Pennsylvania, as well as the nearby States of Illinois, Indiana and Wisconsin.

Studebaker has led driveways to all points in the East, to as far South as the Gulf, and to several points as far West as Nebraska and to Colorado.

Haynes reports that 60 per cent of its output is being delivered by driving overland. One-third of the coal production is being driven away by dealers. Twenty-five per cent of the Anderson output from Rock Hill, S. C., is being driven overland. Dort reports that 20 per cent of its production is being delivered in this way. Crow-Elkhart says that 40 per cent of its distributers, meaning those located in the Central States, are driving the cars away.

Gasoline Production Increasing

WASHINGTON, May 14—Average daily production of gasoline during January increased almost 2 per cent over that during December, 1917, and the February average daily production showed a 6 per cent increase over January, according to figures compiled by the Bureau of Mines. The January production in gallons was 234.714,062, and the February total 225,823,365.

Production of kerosene, on the other hand showed a marked decrease. The average daily output for 1917 was 4,389,082 gals. In January this was only 3,707,314, and in February 4,182,434 gals.

There was a large increase in the amount of stocks on hand during these two months, practically every kind of oil being stored away in great quantities. On December 31, there were 412,256,833 gals. of gasoline in reserve. On January 31, this was increased to 469,277,166 gals., a gain of 14 per cent. On February 28, the stock on hand was 518,794,609 gals., or 11 per cent more than the amount on hand a month previous.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

J. C. Enell this week assumes charge of the Federal truck department of the Birmingham Motor Co., Birmingham, Ala. For a number of years Enell has been identified with the Federal factory in Detroit as transportation engineer and also in various other capacities.

George P. Schulte of St. Louis has been made salesmanager of the Dearborn Motor Sales Co.

George L. Brush, formerly sales manager of the Maxwell Motor, Harroun Motors, and Elgin motor car companies of Canada, has become identified with the sales department of the Olympian Motors Co., Pontiac, Mich.

Arthur C. Leverton, formerly vice-president of the H. L. & W. Sales & Mfg. Co., Detroit, has been appointed factory manager of the Federal Motor Truck Co., Detroit.

A. H. McIntyre, for the past few years in charge of the wholesale department of the Saxon Motor Car Co. for New England, has accepted a similar position with the Paige-Detroit company in Boston.

E. C. Baynes, formerly with the Hubbard Spring Mfg. Co., Pontiac, Mich., has been placed in charge of the Detroit sales office of the Parker Mfg. Co., Ann Arbor, Mich., manufacturer of high-speed drill chucks, arbors and special tools.

Raymond Thomas MacFarland has been appointed sales director of the Hupmobile Sales Corp., Philadelphia, succeeding Robert McCormack, who resigned recently. An entirely new sales staff comes with MacFarland, two of his assistants, **A. E. Johnston** and **J. A. Brown,** both from the Hupp Motor Co. of Detroit, already being at work in the Philadelphia salesrooms. **Harry Faber,** the Hupp representative in Washington, will join the force shortly and two others, whose names are not announced, will become part of the staff within a few days.

Arthur G. Fischer has been made sales manager of the Hanley-Cadillac Co., Cadillac and Dodge dealer, Huntington, W. Va. For some time Fischer was manager of the Huntington branch of the Packard Columbus Motor Co.

Charles S. Pike, formerly sales promotion manager of the Paige-Detroit Motor Car Co., has been appointed truck sales manager of that company. He was succeeded in Washington, D. C., as Paige representative by Frank Caulk, formerly of the Aluminum Castings Co., Detroit.

Edward V. Oehler, Milwaukee, who resigned as an assistant wholesale manager of the Hoppe-Hatter Motor Co., Milwaukee, state distributor of the Paige, to become a member of the National Army, has qualified for a commission as a second lieutenant of infantry in the third officers' training camp at Camp Custer, Mich.

George H. Williams has retired as vice-president and sales manager of the Edwards Motor Car Co., 178-180 Seventh Street, Milwaukee distributor of the Dodge, to devote his entire attention to the management of the E. & W. Mfg. Co., Milwaukee, organized some time ago by Frank J. Edwards and Williams to manufacture a one and two-ton truck attachment for the Ford and other makes of cars.

Motor Car Securities Quotations

	Bid	Asked
*Ajax Rubber Co.	54	64
*J. I. Case T. M. Co. pfd.	84½	87½
Chalmers Motor Co. com.	6	8
Chalmers Motor Co. pfd.	30	40
*Chandler Motor Co.	80	82
Chevrolet Motor Co.	118	120
*Fisher Body Corp. com.	32	35
*Fisher Body Corp. pfd.	81	87
Fisk Rubber Co. com.	49	52
Fisk Rubber Co. 1st pfd.	98	103
Fisk Rubber Co. 2d pfd.	70	75
Firestone Tire & Rub. Co. com.	93	95
Firestone Tire & Rub. Co. pfd.	93½	95
*General Motors Co. com.	120	120¾
*General Motors Co. pfd.	79¾	80
*B. F. Goodrich Co. com.	44	45
*B. F. Goodrich Co. pfd.	96	100
Goodyear Tire & Rub. Co. com.	143	146
Goodyear Tire & Rub. Co. pfd.	96	98
Grant Motor Car Corp.	2¾	3½
Hupp Motor Car Corp. com.	2¾	3¼
Hupp Motor Car Corp. pfd.	79	85
International Motor Co. com.	23	28
International Motor Co. 1st pfd.	55	58
International Motor Co. 2d pfd.	27	32
*Kelly-Springfield Tire Co. com.	44¾	45¾
*Kelly-Springfield T. Co. 1st pfd.	75	85
*Lee Rubber & Tire Corp.	14	15
*Maxwell Motor Co., Inc, com.	25	27
*Maxwell M. Co., Inc., 1st pfd.	53	55
*Maxwell M. Co., Inc., 2d pfd.	53	54
Miller Rubber Co. com.	103	105
Miller Rubber Co. pfd.	94	97
Packard Motor Car Co. com.	96	105
Packard Motor Car Co. pfd.	89	92
Paige-Detroit Motor Car Co.	16	18
Peerless Truck & Motor Corp.	14	17
Portage Rubber Co. com.	106	108
†Reo Motor Car Co.	14½	16
*Saxon Motor Car Corp.	6	8
Standard Motor Construction Co.	12	14
*Stewart-Warner Speed. Corp.	60	61
*Studebaker Corp. com.	36½	37
*Studebaker Corp. pfd.	75	80
Swinehart Tire & Rubber Co.	26	30
United Motors Corp.	23½	24
*U. S. Rubber Co. com.	57	58
*U. S. Rubber Co. pfd.	103	104½
*White Motor Co.	39½	40
*Willys-Overland Co. com.	16½	17½
*Willys-Overland Co. pfd.	79	82

*At close May 11 Listed New York Stock Exchange. †Par value $10.

J. M. Riordan has resigned as sales engineer of the Grant Lees Gear Co., Cleveland, which position he has held for the last three years, to become associated with the sales organization of the Cleveland Milling Machine Co.

H. W. English, Spokane, has been made district sales manager of the Columbia Motor Truck & Trailer Co., Pontiac, for the Pacific northwest. He has for the last few years been associated with the Republic Motor Truck Co. in that territory.

E. H. Habersham, Baltimore, has been appointed district sales manager for the Columbia Motor Truck & Trailer Co., for the southern states east of the Mississippi River.

A. H. Pearsall has been made district sales manager, with headquarters at Chicago for Illinois, having formerly been branch manager of the Studebaker Corp. at Chicago.

R. Scott Smith, formerly district manager of the Federal Motor Truck Co., Detroit, has joined the Standard Motor Truck Co., Detroit, as district representative.

B. C. Wilson has become associated with the Miller Rubber Co., Akron, where he will handle advertising. He was formerly connected with the Associated Press, in Detroit, later joining the staff of the Martin V. Kelley Co., Toledo, advertising agency.

E. W. Abrogast, recently with the F. B. Stearns Co. at the factory, has returned to his former home in St. Louis as sales manager for the Cole-St. Louis Auto Co.

A. F. Groebl, for several years on automobile selling staffs in St. Louis, has been placed in charge of the newly established Lalley-Light department of the De Luxe Automobile Co., St. Louis.

L. E. Browning has been appointed district manager of the Republic Rubber Corp. in Montana, Idaho, Utah, Wyoming, Colorado, Arizona and New Mexico, with headquarters at 1546 Broadway, Denver, Colorado.

C. P. Henderson, general sales manager of the Cole Motor Car Co., Indianapolis, has resigned and on June 30 will become representative of the company on the Pacific coast.

N. W. Barton, who was manager of the Chicago branch of the Olds Motors Works, Lansing, has been transferred to the factory as Eastern division sales manager.

A. A. Gloetzner, former sales manager for the Covert Gear Co., Detroit, is reported to be somewhere in France as an engineer with the United States forces.

Arthur L. Shipman has been appointed receiver of the Pope Mfg. Co. to succeed the late Colonel George Pope. He is a member of the law firm which was counsel for the late Colonel Pope.

J. C. Ford, formerly manager of the Brooklyn (N. Y.) Goodyear branch, has been made manager of the Viking Tire branch in Brooklyn.

D. Y. Husselman, formerly office manager of the Kelly-Springfield New York branch, has been made manager of the sales promotion department. **J. D. Ertel,** formerly office manager of the Minneapolis branch, succeeds Husselman as New York office manager. Both have been with the Kelly-Springfield Tire Co. about 5 years.

9 Standard Tire Sizes Approved

NEW YORK, May 13—Automobile manufacturers, through the National Automobile Chamber of Commerce, have formally approved the schedule of nine standard sizes of pneumatic tires drawn up by the War Service Committee of the Rubber Industry of the U. S. A. and published last week in Motor World. These nine sizes, including 30 x 3½, 31 x 4, 32 x 3½, 33 x 4, 34 x 4½, 35 x 5, 36 x 6, 38 x 7 and 40 x 8, are to be used in equipping all passenger and commercial vehicles up to 2 tons capacity.

The suggestion that the number of sizes be reduced to these nine standard sizes from more than 200 sizes which now are made came originally from the Commercial Economy Board of the Council of National Defense. Car manufacturers have been asked to use only these sizes on cars produced after July 31, 1918.

The complete adoption of the schedule eventually will mean a great reduction in the number and size of tires which must be produced by manufacturers and carried in stock by dealers. In addition to eliminating about 190 sizes, the schedule also does away with all styles of beads except clincher, which is used for only the 30 x 3½ and 31 x 4, and straight side, which is used for every other size. Quick detachable and Q. D. clincher are eliminated.

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-62	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	1595	....	1595	2150	2150	....	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1145	1095	....	....	1395	....	....
AMERICAN																	
B	6-3½x5	23.4	G & D	Zenith	G & D	DD	3	122	32x4	SS	1645	1595	1695	....	....	....	....
ANDERSON																	
20	6-3½x4½	25.3	Conn	Zenith	Wsths	DP	3	120	33x4	SS	**1465	....	....	....	2165	....	....
400-F	6-3½x5½	29.4	Bosch	Stmbg	Wsths	DD	3	120	33x4	SS	**1925	....	....	....	....	....	....
APPERSON																	
8-18 8th Anniversary	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	34x4 32x4½	SS	†2550	....	2550 3500	....	....	....	....
AUBURN																	
6-39-B	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	120	34x4	SS	1345	1345	....	....	....	....	1595
6-44	6-3½x5½	29.4	Delco	Rafid	Delco	DP	3	131	35x4½	SS	....	1685	1685	....	2450	....	1985
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142	34x4½	QD	3750	3750	4000	4550	5000	5250	....
BELL																	
18	4-3½x4½	22.5	A.Kent	Zenith	Dyneto	D	3	114	32x3½	QD	†995	995	....	....	....	....	....
BIDDLE																	
H	4-3½x5½	22.5	Eisman	Zenith	G & D	DP	4	121	32x4	QD	2600	....	†2650	....	4100	4000	....
BOUR-DAVIS																	
18B	6-3½x5½	29.4	West.	Stmbg	West.	DP	3	118	33x4½	QD	....	1785	....	....	....	....	....
	4-3½x5½	22.5	West.	Rafid	West.	DP	3	118	32x4½	....	....	1680	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	5500	....	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3 1/16x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	825	825	....	....	....	....	850
BUICK																	
E 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	1185	1845	....
E 44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	.... †1695	....	....	....	1265
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	125 132	35x5 34x4½	SS	2970	†2970	2970	....	3840	4160	....
CASE																	
U	6-3½x5½	29.4	Wsths	Rafid	Wsths	D	3	125	35x4½	SS	†1875	....	1875	....	**2375	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wsths	DP	3	117 122	32x4 34x4	SS	1565	1565	1615	1625	1950	2925	....
CHANDLER																	
	6-3½x5	29.4	Bosch	Rafid	Wsths	DP	3	123	34x4	SS	†1595	†1675	1595	2195	2295	2895	....
CHEVROLET																	
490	4-3½x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3½	C	660	685	....	....	1060	....	....
FA	4-3½x5½	21.7	Remy	Zenith	A-Lite	C	3	108	33x4	SS	935	935	....	....	1475	....	....
D	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	120	34x4	SS	1385	1385	....	....	....	....	....
COLE																	
870	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	33x5	SS	2395	†2395	2395	2495	2595 2795	....	....
COLUMBIA																	
C&D	6-3½x4½	25.3	A.Kent	Stmbg	W.Lnrd	DP	3	115	32x4	....	†1495	1450	....	....	2395	....	....
COMET																	
C-50	6-3½x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	....	....	....	1285	....	....	....	....
COMMONWEALTH																	
4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	115	32x3½	SS	†995	1095	....	....	....	....	....
CROW-ELKHART																	
CE-36	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114	32x3½	SS	995	995	....	1295	1395	....	....
CUNNINGHAM																	
	8-3½x5	45.0	Delco	Stmbg	West	D	3	132 142	35x5 37x5	....	....	4250 4750	....	....	....	....	....
DANIELS																	
B	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	3500	3500	3500	....	....	....	....
DAVIS																	
H, I	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1585	1585	....	1850	....	....
J, I	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	125	34x4½	....	....	1950	1950	....	....	....	....
DISPATCH																	
	4-3½x5	22.5	Bosch	Rafid	U.S.L.	CU	4	120	36x3½	QD	1150	....	1250	1400	1400	....	....

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	830	....	....	1095	....	....	865
B	6-3½x4½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	1050	1050	*1050	1650	1650	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3750	3700	3750	....	5150	5250	....
MAXWELL																	
25	4-3½x4½	21.0	A.Kent	K D	Simms	C	3	109	30x3½	C	‡825	825	....	....	1275	1275 1175	985
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wsths	DP	3	136	35x5	QD	3900	3900	3900	....	5000	5050	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3500	*3500	....	....	....	....	....
METZ																	
25	4-3½x4	24.0	A.Kent	A.W.T.	Wsths	F	.	108	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.3	Conn	Rafid	Splitdf	C	3	120	32x4	SS	1250	1250	....	1850	1950	....	300x
C-42	6-3½x5	29.4	Conn	Stmbg	Wsths	C	3	127	34x4	SS	‡1490	1510	1525	2135	2275	2850	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1650	1650	....	....	2280	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†1985	....	1985	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	110	32x3½	SS	995	995	....	....	....	....	....
J	6-3½x4½	25.3	Conn	Stmbg	Dyneto	D	3	117	33x4	SS	1295	1295	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	31x3½	QD	565	‡635	....	....	965	....	....
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x3½	QD	....	995	....	....	1850	....	....
MOON																	
6-36	6-2½x4½	19.8	Delco	Titan	Wagner	DP	3	114	32x3½	SS	....	1295	....	....	....	....	....
6-66	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1985	....	1985	2650	2650	....	....
MOORE																	
30	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	106	30x3½	....	695	....	....	....	....	....	....
MURRAY																	
	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	....	2800	2800	2800	3600	....	4000	....
NASH																	
671	6-3½x4½	29.4	Delco	Rafid	Bijur	DP	3	125	34x4	SS	....	....	1465	....	....	....	....
681-683	6-3½x5	25.3	Delco	Marvel	Delco	P	3	121	34x4	SS	†1295	1295	....	....	1985	....	....
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafid	Wsths	C	3	128	34x4½	QDR	†2150	†2150	2150	2645	2820	....	....
Twelve	12-2½x4½	39.6	Delco	Rafid	Bijur	C	3	128	34x4½	QDR	†2750	†2750	2750	3645	3420	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	....	....	....
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1050	1050	....	1550	1550	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1550	....	....	....	....
37	6-2½x4½	18.9	Remy	Johnson	Remy	C	3	112	32x4	SS	†1195	1195	....	1595	1695	....	....
OLYMPIAN																	
	4-3½x4½	16.9	Conn	Stmbg	A-Lite	D	3	112	32x3½	....	†1085	1085	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	112	32x4	SS	‡965	965	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Titan	A-Lite	C	3	104 106	31x4	C	835	850	‡875	....	1340	....	....
85B6	6-3½x4½	25.3	.....	Titan	A-Lite	C	3	116	32x4	....	1195	1195	....	1420	1620	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.7						136			‡3950	‡3950	3950	....	....	5000	....
W-42	6-4 x5½	38.4	Bosch	Zenith	O-M	OM	6	142	35x5	SS	....	....	5300	....	6300	6300	....
PACKARD																	
3-35								136			....	....	4300	....	....	5850	....
3-25	12-3 x5	43.2	Delco	Own	Bijur	DD	3	128	35x5	QD	....	3950	3950	5300	....	5500	....
PAIGE																	
6-39	6-3½x5	28.4	Remy	Stmbg	G & D	D	3	117	32x4	SS	1395	1395	....	....	1925	....	....
6-55	6-3½x5½	29.4	Remy	Rafid	Remy	D	3	127	35x4½	SS	....	....	1830	2850	....	3230	....

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DIXIE FLYER																			
LS35	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	1095	1095	....	....	1375	....	....
DOBLE-DETROIT																			
	2-5 x4	....	Doble	Stmbg	Wagner	..	.	135	36x5	....	....	....	3750	....	....	....	....
DODGE BROTHERS																			
	4-3½x4½	24.0	Delco	Stewart	N.E.	D	3	114	{32x3½ 33x4	SS	985	985	....	1425	1350	....	....
DORRIS																			
6-80	6-4 x5	38.4	Bosch	Stmbg	Wsths	DD	3	132	33x5	SS	....	....	....	....	....	....	....
DORT																			
11	4-3½x5	19.6	Conn	Carter	Wsths	C	3	105	30x3½	QD	865	865	**1000	1265	1265	....	....
ELCAR																			
D.F.	4-3½x5	19.6	A.Kent	L-O	Dyneto	DP	3	116	{32x4 32x3½	SS	....	1095	1095	....	{1625 1795	....	....
	6-3½x4½	25.3	A.Kent	Stmbg	Dyneto	P	3	116	33x4	....	....	1295	1295	....	....	....	....
ELGIN																			
A	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	117	33x4	....	†1095	1095	....	....	**1645	....	....
EMPIRE																			
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS	1165	1125	....	....	....	....	....
70-A	6-3½x4½	25.3	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	....	1345	1375	....	....	....	....
73	.....	....	.....	.....	.....	..	.	...	....	....	....	†1360	....	....	....	....	....
FIAT																			
E-17	4-5½x6½	44.1	Bosch	Zenith	Wsths	D	4	140	35x5	QD	....	....	5500	....	....	6500	....
FORD																			
T	4-3¾x4	22.5	Own	{Holly Kngstn	.....	D	2	100	30x3½r	C	435	450	....	650	785	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	33x4½	SS	2200	†2445	2445	2850	3050	3200	....
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	....
GRANT																			
G	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	114	32x3½	....	‡1095	1095	....	1575	1595	....	1350
HALLADAY																			
S	6-3 x5	21.6	A-Lite	Stmbg	Wsths	D	3	118	33x4	SS	‡1185	1150	....	....	....	....	....
R	6-3½x5	29.4	Wsths	Stmbg	Wsths	D	3	122	34x4	SS	1385	1385	....	....	....	....	....
HARROUN																			
	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....	....	895	....	....	....	....	....
HARVARD																			
4-30	4-3 x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	785	†985	....	....	....	....	....
HAYNES																			
38	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1850	....	....	....	....	....
39	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1950	....	1950	2660	....	....	....
44	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2910	....	2910	....	3460	....	....
HOLLIER																			
206	6-3½x4½	25.3	Remy	Stmbg	Splitdf	C	3	116	32x4	SS	....	1485	....	....	....	....	....
188	8-3 x4½	28.8	A.Kent	Stewart	Splitdf	C	3	116	34x4	SS	†1485	1485	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	34x4*	SS	....	†2050	1950	....	2750	3400	....
HUPMOBILE																			
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x4	....	1350	1350	....	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	950	1000	1025	....	....	....	....
JACKSON																			
349	8-3 x3½	28.8	A.Lite	Zenith	A-Lite	DP	3	118	34x4	SS	†1495	1495	1570	....	2195	....	....
JONES																			
26-AB	6-3½x5½	29.4	Remy	Rafid	Wsths	DP	3	125	34x4	SS	†1875	1875	1875	....	2750	....	....
JORDAN																			
J-60	6-3½x5½	29.4	Delco	Stmbg	Bijur	DD	3	127	35x4½	SS	1995	†1995	1995	....	2750	3500	....
KING																			
F	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	....	†2350	2150	....	**2950	....	....
KISSEL																			
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1495	1495	1585	1935	1935	....	1935
Double-6	12-2½x5	39.6	Delco	Stmbg	Own	DD	3	128	34x4½	....	1585	....	2450	....	2850	....	2850
KLINE																			
6-38	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1495	1495	†1495	....	2200	....	....
LEXINGTON																			
6-O	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	....	1385	....	....	1545	....	....
6-R	6-3½x4½	25.3	Conn	Rafid	Wsths	P	3	122	34x4	QD	....	1585	1585	....	1785	....	....
LIBERTY																			
10-B	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1385	1385	....	....	1925	....	....
LOCOMOBILE																			
E-38	6-4½x5	43.3	Berling	B & Ball	Wsths	DD	4	139	37x5	QD	†5150	*5000	5000	....	....	6200	....
E-48	6-4½x5½	48.6	Berling	B & Ball	Wsths	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7200	....
LOZIER																			
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	....	....	....
82	6-3½x6	36.0	Eisman	Rafid	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																			
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD	.	132	35x4½	SS	....	....	1650	....	....	....	....
MADISON																			
	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	{124 120	34x4	SS	†1485	1485	1485	....	....	....	....
PAN-AMERICAN																			
G-6	6-3½x5	23.4	G & D	Rafid	G & D	D	3	120	33x4½	SS	....	1650	....	1650	....	1950	....
PATERSON																			
6-45	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	120	32x4	C	†1295	1265	1295	....	**1795	....	....
PEERLESS																			
56	8-3½x5	33.8	A.Kent	B&Ball	A-Lite	DD	3	125	35x4½	SS	†2550	....	2550	3050	3250	3690	....
PIERCE-ARROW																			
38-C-4	6-4 x5½	38 4	Bosch	Own	Wsths	C	4	134	34x4½	QD	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48 6	Bosch	Own	Wsths	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60 0	Bosch	Own	Wsths	C	4	147½	36x5½	QD	†6400	6400	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	23 4	Delco	Titan	Delco	DP	3	120	32x4	SS	†1395	1395	....	....	....	....	....
PREMIER																			
6-C	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	....	†2285	2285	....	....	....	....
PRINCESS																			
36-F	4-3½x4½	22.5	Splitdf	Schebler	Disco	D	3	108	32x3½	....	875	875	875	....	....	....	....
REGAL																			
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD	....	795	....	....	....	....	....
REO																			
	6-3⅞x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	1550	1550	....	....	....	....
	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	120	34x4	SS	1225	1225	....	....	....	....	....
REVERE																			
	4-4½x6	30.6	Bosch	Stmbg	Bijur	DD	4	130	32x4½	....	....	....	....	....	....	....	....
ROAMER																			
C-6-54	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DP	3	128	32x4	SS	2350	†2250	2475	....	....	....	....
D-4-75	4-4 x6	25.6	Bosch	Stmbg	Bijur	DP	3	128	32x4½	SS	2950	....	3250	....	3950	....	....
ROSS																			
	8-3½x5	33.8	.....	.....	W.Lnrd	DD	3	130	35x4½	SS	‡1850	....	1850	....	....	....	....
SAXON																			
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	935	1045	....	1395	....	....	....
SAYERS																			
SIX-42	6-3½x4½	25.3	Delco	.....	Delco	P	3	118	32x4	....	....	1395	....	....	....	....	....
SCRIPPS-BOOTH																			
D&H	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1285	....	....	....	....	....	....
G	4-3½x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	‡935	....	....	....	....	....	....
Six-39	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1195	1195	....	....	....	....	....
SIMPLEX																			
V	6-4½x6½	45.9	Eisman	Nwomb	Bosch	D	4	143½	37x5r	QD	Chassis	7000	....	....	....	....	....
SINGER																			
	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	139	35x5	QD	4200	†4325	4100	....	5250	5125	....
STANDARD																			
G	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	....	†2450	....	2450	....	3500	4000	....
STANLEY																			
Steamer	2-4 x5	12.8	.....	.....	.....	..	.	130	35x4½	SS	....	†2750	2800	....	....	....	....
STEARNS																			
SKL4	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS	†1935	1935	2175	2400	2575	3200	....
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	125	35x4½	SS	†2700	....	2700	3200	....	3875	....
STEPHENS																			
Salient Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	118	32x4	QD	1585	1585	†1650	....	2085	....	....
STUDEBAKER																			
SH-4-40	4-3½x5	19.6	Remy	Schebler	Wagner	C	3	112	32x3½	SS	1050	995	....	....	1525	....	....
EH-6-50	6-3½x5	29.4	Remy	B&Ball	Wagner	C	3	119	32x4	SS	1450	1395	†1395	....	....	....	....
E-G-6	6-3½x5	36.0	Remy	B&Ball	Wagner	C	3	126	33x4½	....	....	1795	....	....	1950	....	....
STUTZ																			
S-7	4-4½x5	30.6	Delco	Stmbg	Remy	C	3	{120 130	32x4½	SS	2550	†2650	*2750	....	....	....	....
SUN																			
17	6-3½x5	29.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	....	....	....	....
TEMPLAR																			
A-445	4-3½x5½	18.2	Remy	Zenith	Remy	P	3	118	32x4	SS	2385	2085	....	....	....	....	....
VELIE																			
38	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS	1390	1390	†1390	....	1935	....	....
39	6-3½x5½	29.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS	....	....	1645	....	....	....	....
WESTCOTT																			
S-18	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1890	1940	1940	**2790	**2790	....	....
WHITE																			
16-Valve	4-4½x5½	28.9	.....	Own	L-N	P	4	{124½ 137½	35x5	U	†5000	....	†5000	6050	6050	6200	....
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	121	34x4½	SS	....	....	1625	2275	2325	2425	....
88-8	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	125	34x4½	SS	†2550	....	2100	....	2800	2900	....
WILLYS																			
89-6	6-3½x5½	29.4	Conn	Titan	A-Lite	C	3	120	36x4½	SS	†1450	....	1450	....	1330	....	....
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	3150	3150	3200	4150	4400	4400	....
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3850	3850	3850	4850	5100	5100	....
WOOD'S																			
Dual Power	4-2½x4	12.1	A.Kent	Stmbg	Own	Mag	.	124	35x4½	QD	....	....	....	2950	....	....	....

*6-passenger. †4-passenger. ‡3-passenger. t-town car.
**Convertible.

ABBREVIATIONS—"A. Kent" Atwater Kent, "A-Lite" Auto-Lite, "B. & Ball" Ball & Ball," "Conn" Connecticut, "G & D" Gray & Davis, "Eisman" Eisemann, "L-N" Leece-Neville, "N. E." North East, "Nwcmb" Newcomb, "O-M" Owen Magnetic, "Rafid" Rayfield, "Stmbg" Stromberg, "Splitdf" Splitdorf, "Titan" Tillottson, "Wsths" Westinghouse, "W. Lnrd" Ward Leonard, "D" Disk, "DD" Dry Disk, "P" Plate, "DP" Dry Plate, "C" Cone, "F" Friction, "G" Gearless, "CU" Control Unit, "Mag" Magnetic, "SS" Straightside, "QD" Quick Detachable, "C" Clincher, "DC" Detachable Clincher, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers, . NOTE—37½x5½ r means that the rear tires are 37x5½ and the front are smaller. Detachable top, 300x, means $300 extra.

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The N. A. A. A. J. and the M. A. M. A.

Chicago, May 8, 1918.

Editor Motor World: Herewith a general letter sent to our members today, which is self-explanatory. If you can publish the letter in whole, in part or in substance we shall appreciate it. —Wm. M. Webster, Commissioner, National Association of Automobile Accessory Jobbers, Chicago.

To our Members of the N. A. A. A. J.:

A number of the general letters of the Motor and Accessory Manufacturers' Association of April 23, regarding our accessory show, have reached this office, stating among other things that they will "assume jurisdiction" over our show.

I incline to the belief that if they rightly understood just what we had in mind, of giving, a trades show without charge, they would not have given the matter a second thought or assumed an arbitrary position. It may interest you to know that long before our association decided to embark in the show business, arrangements were on foot, plans well under way, blue prints had been prepared and options secured to start a similar undertaking for the especial benefit of the accessory manufacturers, inspired, I understand, by a number who became dissatisfied with the treatment they had received and others who were willing to join hands with them. The feeling in this direction is so strong—has become so thoroughly crystallized—that mere resolutions or arbitrary mandates will not keep it down, but an accessory show of the kind we propose to give is bound to come.

The announcement issued on March 29 brought out a great number of letters and in many cases the authors very severely criticised the treatment accorded them on show matters in the past. Some openly expressed their dissatisfaction and stated they had about concluded to discontinue making exhibits at the annual shows, while others took the stand that if the order issued on this matter was enforced they would resign from that association, rather than submit. It might not be amiss if others feel in the same way to at least take it up with these people and explain the great injustice they are imposing upon you, provided you think well enough of it, or if it is of sufficient importance to you to do so.

I am trying to reconcile their inconsistency in differentiating against our show when it is a known fact that their members have made exhibits during show time in different hotels, where they bought space and where no admittance fee was charged—that is our case identically—a distinction in practice without a difference in principle.

In the many letters I have sent out pertaining to the show I have studiously refrained from making any mention whatever of, or alluding to, these expressions of dissatisfaction in any way, feeling it was not just the proper thing to do and preferring not to say anything that might be construed that we were even trying to make capital, or in any way take advantage, of them, but I now feel I should give you all the facts.

I firmly believe nothing has so materially contributed to the marvelous growth and splendid success of our association as the broad spirit of liberality and fairness, in which it has at all times conducted its affairs and while it is true we are sympathetically jealous of our rights and exercise all fair and honorable means in guarding them, for this right minded persons can only respect us.

It matters not where, when or how our members show their goods, improve their condition or promote their interests, so long as they properly conduct themselves and make a creditable exhibit in the show we intend to give. I feel it a sense of duty, however, to here clearly point out to you and especially to such of our members who may for the time being, through coercion or otherwise be kept from exhibiting at our show, that exhibits in your line will be made by one or more of your competitors, who will naturally make friends, take orders, sell goods and open new accounts, possibly with your customers. Just how long you can, or will, stand this sort of thing time alone and your ledger accounts will tell, for the great army of the better class of jobbers who you know attend our conventions, will also attend our show and they are a factor which must be reckoned with, for they certainly control the purchasing power and that supports shows.

It is equally fair to presume that they will not take kindly to any assumption or interference with what they may consider their rights, for all letters received at this office from the jobbers throughout the country lend the highest possible indorsement to our show propaganda.

Another important consideration is if you absent yourself from such a splendid opportunity of being thrown directly in contact with your customers — the jobbers — as we offer, and which opportunity has, as a matter of fact, never before been offered in this condensed and practical form, you will naturally be the loser.

In the maximum space at our command all but about thirty units have been subscribed for and at this writing I am worried a great deal more about how we are going to be able to take care of our members and supply them with space than I am about anything else.

This somewhat lengthy letter is not sent for the purpose of unduly influencing you one way or the other, but rather for the purpose of pointing out to you the various phases of the situation, for in so far as our show is concerned it will go on to the end and will be a success beyond any doubt and I regret very keenly, as I stated in the opening of this communication, the attitude of that association on this question, and after you have had answers to some of these questions and other points I have made, cleared up to your satisfaction, you will then be in a reasonably good position to decide what you may wish to do.

A current issue of a trade journal states "our application has been turned down by the directors of that organization." That is not so, as we have made no application nor have we had any correspondence with that organization about the show one way or the other.

You know it is not only my wish, but it is our disposition and policy to go along in peace, harmony and good will with all kindred organizations and to do those things which will bring out the maximum of good with the minimum of friction in the firm belief that there is room in this country for all and that the policy of "Live and let live" is bound to and finally will prevail against all odds.

Respectfully submitted,
WILLIAM M. WEBSTER,
Commissioner.

Firestone Separate Rim Division

AKRON, May 9—As a matter of operating economy and efficiency, the Firestone Tire & Rubber Co. is separating its rim manufacturing division from the tire and rubber company, so that the rim plant may be entirely in the hands of skilled steel men. The Firestone Steel Products Co. is being formed to take over the rim end of the business. The stock of the new company will all, except directors' qualifying shares, be owned by the Firestone Tire & Rubber Co. J. G. Swayne, present manager of the rim plant, will be vice-president and factory manager of the new company, and present officers and directors of the rubber company will have leading places in the new concern.

It is stated that the plant uses 30,000 tons of steel a month.

Humphries, Leverton, Williman Join Hands

DETROIT, May 9—The H. L & W. Sales & Mfg. Co., manufacturer of tools, jigs and fixtures, comprises S. H. Humphries, now factory manager of the Wright-Martin Airplane Co.; A. C. Leverton, who was superintendent of the Chalmers Motor Co., Detroit, for 3 years and A. B. Williman, who was superintendent of purchases of the Hupp Motor Car Corp., Detroit.

U. S. Light Buys $105,000 Bonds

NIAGARA FALLS, N. Y., May 13—The final computation shows that the U. S. Light and Heat Corp. bought third liberty loan bonds to the extent of $105,000, $55,000 of which was taken by employees. The purchase on the second loan was $102,000, $52,000 of which was taken by employees. On the first loan employees bought $22,000. This makes a total of $229,000 worth of bonds that the corporation has taken.

Coming Events

Racing

Uniontown, Pa.	Uniontown Speedway Assn.	May 16
Sheepshead Bay, N. Y.	Championship	May 30
Chicago	Chicago Speedway	June 22
Cincinnati	Cincinnati Speedway	July 4

Conventions

Hot Springs, Va.	Convention National Association of Automobile Accessory Jobbers.	June 5-12

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume LV
No. 8

New York, May 22, 1918

Ten cents a copy
Two dollars a year

Hudson Body Types Are Distinctive

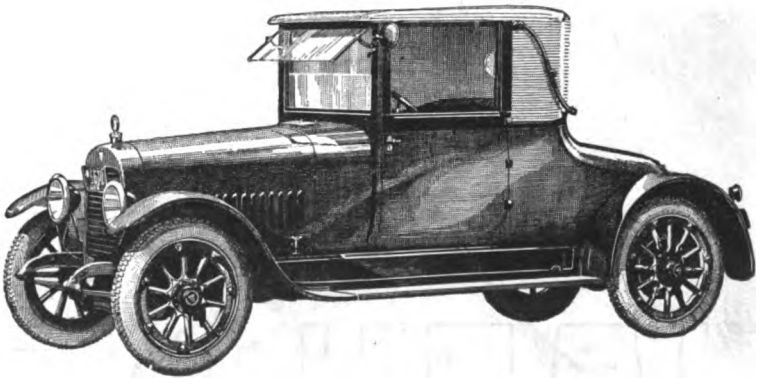
Hudson has created many distinctive body types.

The lines of the Hudson Super-Six set a standard for others. At the New York Show this year there were 22 other makers of cars that had patterned new models after the popular Hudson Speedster of 1917. Such is the prestige that Hudson has gained as a designer of fine body types.

None ever built, however, has proved more attractive than those of the present series, of which there are ten different models, as follows:

Seven Passenger Phaeton
Four Passenger Phaeton
Runabout Landau
Four Door Sedan
Touring Limousine
Town Car
Town Car Landau
Limousine
Limousine Landau
Full Folding Landau

This is the new Runabout Landau. It is the smartest car of the year.



Hudson Motor Car Company, Detroit, Mich.

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WHEN the big volume of Nash production is again available to buyers, we will be in a position to increase materially our dealer organizations. You will do well, therefore, to keep this Nash proposition in mind so as to be able to avail yourself of the unusual opportunities for profit which both the Nash passenger car and Nash truck franchises are bound to offer in your territory when the war is over.

Nash Passenger Cars	
5-Pass. Touring Car	*$1295*
4-Pass. Roadster -	*1295*
Sedan - - - - -	*1985*
Nash Model 671 -	*1465*
(Seven-Passenger Touring Car)	

Nash Trucks		
One Ton	*Chassis*	*$1495*
Two Ton	*Chassis*	*1875*
Nash Quad	*Chassis*	*3250*

Prices f. o. b. Kenosha

NASH TRUCK FEATURES

M. & S. automatic locking differential.
Internal gear-drive rear axle.
Electric lights and starter.
Unusually long springs, and the Hotchkiss drive.
Extra heavy frame and radiator construction

The Nash Motors Co., Kenosha, Wis.

Manufacturers of Passenger Cars and Trucks
Including the Famous Nash Quad

NASH MOTORS

VALUE CARS AT VOLUME PRICES

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MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

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PRECISION
BALL BEARINGS
(PATENTED)



Day-in-and-day-out dependability never counted for so much—never was worth so much—never was so sought after—as now. To be ready at all times with the full measure of service—to be capable, if need be, of the super-effort that emergency may demand—can any small price-difference be considered for a moment, beside this?

"NORMA" Precision Bearings, in the high-grade ignition apparatus and lighting generators that are rendering maximum service today, are potent factors in the consistent performance which makes these accessories to be preferred where dependability is sought.

Be *Sure*—See That Your Electrical Accessories Are "NORMA" Equipped



THE NORMA COMPANY OF AMERICA
1790 BROADWAY NEW YORK
Ball, Roller, Thrust and Combination Bearings

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GRAY & DAVIS STARTER for FORD cars

The well-beaten path made by thousands of Fords equipped the Gray & Davis way is being followed by many Ford owners. Every Ford equipped with a Gray & Davis system becomes a successful traveling salesman.

Therefore, live dealers can readily see the opportunity that awaits them in selling Gray & Davis starters. Profits are generous—solid, substantial business is built up and customers retained through satisfactory service rendered by G&D Starters for Ford cars.

Write today, as there are thousands of Fords waiting to be equipped the Gray & Davis way.

Booklet A-62 upon request.

GRAY & DAVIS, Inc., Boston, Mass.

CANADA, UNIVERSAL CAR AGENCY, WINDSOR, ONTARIO



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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LV New York, U. S. A., Wednesday, May 22, 1918 No. 8

The Greatest Mother in the World



What you give may mean so little to you. It may pinch a little this week—or in the weeks when you pay your subscriptions—but what is that pinch compared to the need of this Greatest Mother in the World? Let every member of your organization give. Many will fail to give if the opportunity is not made for them—if they are not asked. Make a "giving" opportunity for every member of your organization

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How One Dealer Is

Fighting The War

In His Own Shop

1—COSTS WERE RISING 2—LABOR WAS SCARCE 3—PROFITS WERE DISAPPEARING

By Ben S. Brown

WHEN the Great War stretched its paw out over America and began to stick its fingers into the whirring wheels of industry H. A. Dougherty, who sells the Republic truck as the H. A. Dougherty Motor Co., in Kansas City, began to think.

He saw costs rising. He saw labor hard to get. He saw profits getting less instead of greater. He saw a dim and uncertain future, with the Great War nobody knows how long—and then he began to figure.

There was a demand for bodies for the trucks he was selling. He was making these bodies, but wasn't making any enormous profit out of them. He determined to try in this department a first effort at so shifting his inside organization that his old business machine would grind out more dollars.

He saw that the Great War was one of soldiers, sailors, mechanics, farmers, carpenters, dealers, garagemen, salesmen, office girls and all the rest of the hundred millions in this country—plus money, time and effort. *And so he began to fight the Great War right there in his own shop.*

Dougherty has always been a good picker of men. After picking a man he tells him what result is desired and lets the man get the result.

Wherefore, he picked Sam Simon last August and told Sam to do things with the body shop. He told Simon he probably would have to build a new building and do a lot of other things—*but that he must cut the costs and GET THINGS OUT ON TIME.*

Simon spent about $1,000 in the installation of minor helps to operation.

In two months this thousand dollars was saved, the production was doubled, the net profits were increased greatly and the wages of the men were raised twice. A double production was being got out by practically the same number of men as had previously been employed; and despite the rapid increase in the cost of materials, the prices of the product were not increased.

How did Simon do it?

Looked Around for Two Weeks

Here let us give just an introductory hint on Simon's methods for the man who may want to follow Simon's example. He had a new job here and a big one. He was working for a man who had got good results from other fellows and he knew he had to make good, but—*he spent the first two weeks just looking around and practically doing nothing. In this time, however, he found out where time was wasted, where space was wasted, where money could be saved and where more could be earned—and then he got busy doing things.*

The question of space was important, and it is important to every body maker however cheap rent may be in his community. If materials can be stored near the place where the workmen will have to use them much time of the workmen or of the helpers is saved. So Simon tackled the question of saving from the standpoint of the convenient and economical storage of materials.

In many establishments lumber is stored just as it comes from the mill or the train. When a carpenter or cabinet maker needs a piece of lumber he does one of two things. Either he takes the first board he gets his hands on and saws it to the proper length, or he fiddles around through the pile until he finds exactly what he should take for his purpose.

Standardized Lumber

Simon discovered that practically every body or cab required a certain number of pieces of a certain size of board, and certain numbers of certain other sizes; and that boards used for other purposes in the shop could always be cut from certain standard lengths and widths. It was comparatively simple to further standardize the requirements of various departments as to the sizes of boards they used.

One of the first radical changes in the Dougherty plant, therefore, was the provision for storing lumber. It is now one man's job to pile the lumber as it is received. It is sorted and all pieces which are to be used for definite purposes are put on their proper shelves and in their proper piles.

On one shelf, for instance, are boards which will be used for no other purpose than floors of express bodies. On another shelf are boards for runningboards. The man who sorts the lumber—and other workmen also—use the lufkin rule, which greatly facilitates the identification of particular sizes and actually saves waste of lumber through making unnecessary the sawing of a board which the eye had not properly sized up.

How It Is Done

The method of meeting the problem of having on hand sufficient of various sizes for the various purposes is well illustrated in the case of the shelf for lumber for express body floors. On this shelf are 6-in. and 4-in. boards and the stockman can see at a glance how many of these sizes he has on hand without referring to his record.

WHEREFORE

H. A. Dougherty

1—Made labor-saving devices.
2—Cut out waste time.
3—Worked out many efficiencies.
4—Doubled production with the same force.
5—Raised the wages of the men.
6—Did not raise his prices.
7—Made his profits greater.

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Nor is it left to the workman to figure out how many of these boards he will need for a specific order for a floor. The dimensions are calculated in the office and an order written there which designates the number of pieces of 6-in. or 4-in., or other widths which are to be taken from this shelf to make the floor.

The workman merely reads his orders, takes the proper number of boards of the designated width—all the boards are marked with chalk—and goes ahead to make his floor.

Standardized Irons

A similar system—similar standardization—has been introduced into the department of irons. For a few dollars a storage rack was built in which each size of iron has its separate compartment. There are no bars or strips lying on the floor. One would be surprised at the statement of the saving of time and money effected by this inexpensive and simple system of storage. Stockkeepers can see at a glance just which kind of irons are running short and can record. There is never any holding up of a job because of the lack of a rod or strip.

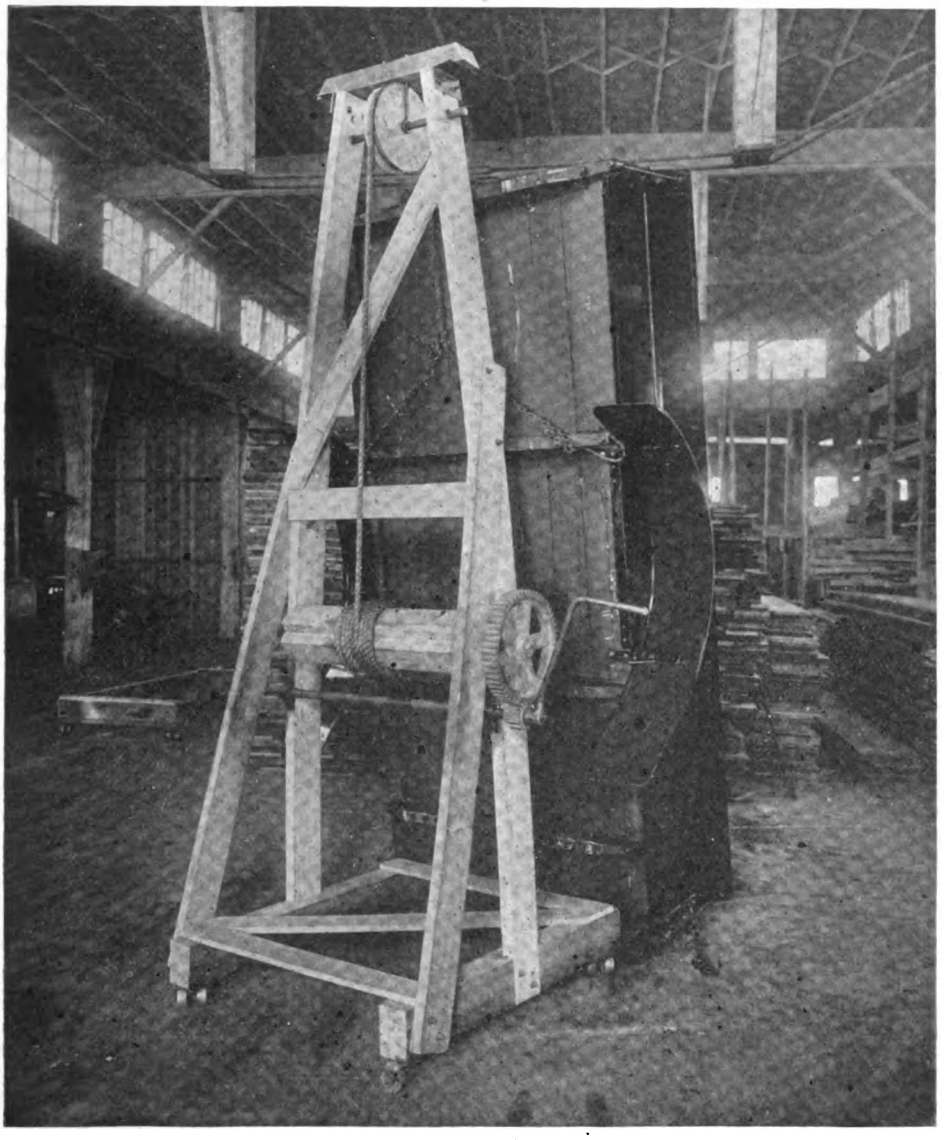
The rods and strips had formerly been cut with a chisel to lengths desired. Simon watched a man with a chisel and discovered that forty strokes were necessary on the average to cut a piece. *He spent a few dollars for a pair of shears with which a boy can cut all the irons needed in the big shop and have plenty of time left to operate the punch press.*

THE SHEARS SAVED THEIR COST IN LESS THAN A WEEK.

Saved Time by Machines

The men had been drilling the many holes necessary in the strips as the strips were needed. Two punch presses were installed and both of them paid for themselves in two weeks. *One of these presses can punch 20 holes while a man is drilling a single hole.* One man does practically all the punching. For the standard work he has a sample always at hand and a special sample is marked for the odd orders.

The handling of irons referred to is something that can be done in any shop. Another accomplishment of Simon, however, is something that happens once in a lifetime. He had watched the blacksmiths forging out the irons by hand, and it had seemed to him a pitiful waste of their time as well as an unnecessary expense on the firm. There were eight men at the forges, almost constantly employed on these irons, and they never could keep up with the other departments.



Type of body hoist and carrier used by the H. A. Dougherty Motor Co., Kansas City

Saved Time of Blacksmiths

Lots of the other persons with ideas of system and standardization in their minds had been distressed to observe the almost unlimited variety in the sizes and shapes of the accessory irons and braces. It did not seem logical that a commodity which could be used by so many thousands of plants should have to be made by each of these plants at such large expense in time and labor. Some of these irons cost as much as $2.20 to forge out by hand and the large majority of them cost from that price down to $1.60. Probably nine-tenths of the body makers who read this will think the figures are exaggerated, but they are actual records of the time taken and the cost of materials.

This is obviously an unnecessary expense and burden on the plant. Simon decided that it was a duty that should be performed by some manufacturer and started out on a missionary task of trying to get a manufacturer to make the dies and issue standard irons. He ran up against the stone wall of several thousand dollars' deposit for the making of the dies, but he finally convinced the manufacturer that the body business was growing so rapidly that its standardization was inevitable.

The dies have therefore been made by the manufacturer at his own expense, and twenty-two different styles of iron are now being issued, the Dougherty body factory being only one of many customers who are sharing the benefits of this development in the trade.

Enormous Cost Cuts

The reduction in cost of the braces and other irons used in making bodies is one of the miracles of modern business. The disparity is ridiculous between the former cost and present cost of these irons. Braces which when forged by hand cost $2.20 now cost 22 cents. Irons which ranged in price from $1.20 to $2 now range from 15 to 20 cents.

Not only is the price so greatly reduced, but the quality is greatly improved. In many cases the braces are far stronger than when a blacksmith had to weld a collar and file it out. Wherever an iron has to be welded the manufacturer does it by electricity and therefore far better than it can be done by a blacksmith with his forge.

Cheapens Many Operations

The effort to standardize the problem of iron has opened up a lot of new opportunities for cheapening operations and production. It has been discovered, for instance, that very few changes are necessary in a few standard sizes and shapes of iron to adapt them to almost any kind of body job. Braces are ordered in these few standard sizes and

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these can be bent or rebent by the blacksmith into almost any shape desired. Simon may be slightly more expert in the art of interchanging parts than some, but he has demonstrated that this interchange can be effected with very little trouble with a great saving in stock and in time.

The standardization of iron and the contract with the manufacturers have been saving the Dougherty company about $5,000 a month.

Saved in Trimming

In a room 20 x 25 the Dougherty company has its trimming department for its large production of cabs. The sewing machines are installed in pairs, shelves built around them with a depressed platform between, upon which the scraps are shoved.

In this room is another of the simple installations which cost little money and save a lot of time. Two 2 x 4s were projected several inches from the wall with braces; slots in the outside edge of these 2 x 4s hold ⅝-in. rods. On the rods are the rolls of fabric, artificial leather, buckram, etc., convenient of access to workmen, much the same as large rolls of wrapping paper are mounted in stores.

A large cutting table is set 18 in. from the rack, and the fabric as unrolled can be laid on the table so that when a cut is to be made the fabric can be laid on the place where it is to be cut into shape for the machine.

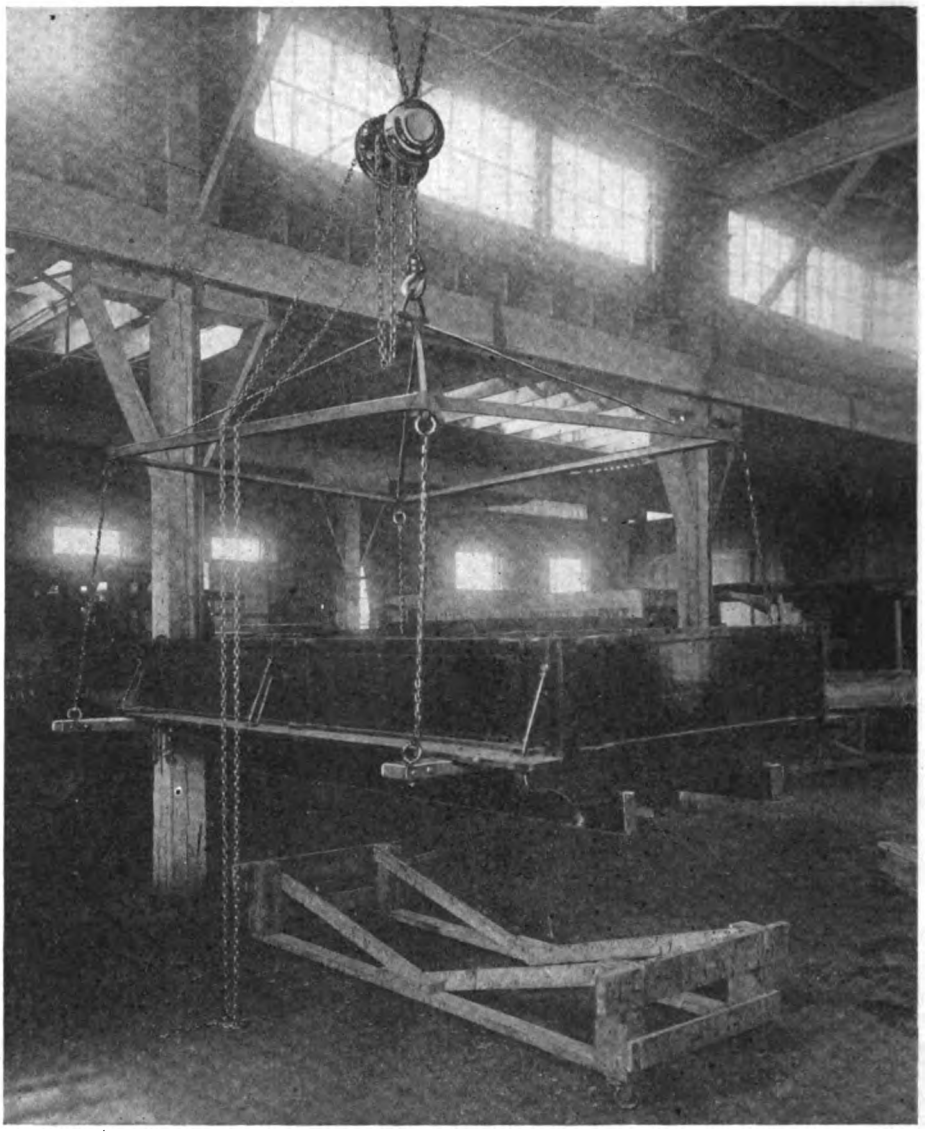
The equipment of the entire trimming department is in harmony with this illustration. There are places for everything so that a workman may know exactly where to go for what he wants and the stockman may see exactly the amounts of any particular items on hand.

Labor-Saving Devices

Numerous devices have been installed in the general large workroom for facilitating operations. There are the electrical blowers on the forges, for instance, which cost $32 a piece, and which save, as only one item of economy, the wages of a helper, or the time of the blacksmith himself.

Fifty dollies—low platforms or frames on wheels—are in use for shifting the bodies in their process of manufacture. The body is put onto a dolly as it is framed and remains there until it has been painted and is ready to be put on the chassis or shipped.

One of the principles upon which Simon has attacked his problem of more efficient operation is that the easier the work is for the workman the better the results, and when he saw eight or ten men struggling with a heavy body to lift it onto the chassis he saw a condition that was not logical or economical. He therefore rigged a chain hoist to lift the bodies. The hoist is equipped with a frame, made of four angle irons, and from each of the four corners depends a chain. Beams with rings in their ends are put under the body, hooks on the dangling ends of the chains attached to the rings, and the bodies lifted as high as desired by the hoists. At first the men were inclined to ride in the bodies, but this practice was discouraged.



Another special type of body hoist and dolly used by the Dougherty company in the production of commercial vehicle bodies

Different sizes of chains are provided so that the heaviest bodies can be cared for without hazards. Chains of different lengths are also provided.

Another of the special devices on the main floor is a body carrier. This machine lifts the big truck bodies, carries them to another part of the room and stacks them end up in a row. Incidentally, this sort of stacking uses up only about 10 per cent of the space formerly used for storing the bodies, since the body occupies about 18 to 24 in. of floor space.

Work Made Easier

The body carrier—see illustration—consists of a pair of 2 x 6s, 10 ft. high, and a base about 4 x 4s, about 4 ft. square. The two uprights are braced at one side of the base, the uprights being in the center of the bars. The front half of the base is clear. In the upright is set a drum, on the end of which, outside, is a pinion operated by a crank. At the top of the frame is a wheel over which a rope extends from the drum. A hook on the end of the rope catches the body and lifts it endwise onto the platform on the base of the frame, and the frame, which is on wheels, is then rolled to the place where the bodies are stacked.

Cab-Making Economy

A surprising economy in the production of cabs has been attained in this department of the Dougherty shop, and it was brought about by system and standardization.

One man spends most of his time cutting the lumber for cabs. There are always on hand the boards of the necessary sizes for 20 cabs. Previously in this shop—and perhaps in most others—the lumber for each cab was cut as needed. The new system shows a cost of $5.40 for the lumber and labor for one cab ready for assembling. One man can assemble 10 cabs in 36 hr.

The cabs go through a definite routine after assembling. The trimmer puts on the top, after which the cab goes to the finish shop. It receives one coat of lead, and the blacksmith puts on the bolts and forges. It goes back to the painter, who

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And this is the trimming department where the upholstery is cut and fitted to the bodies built by the Dougherty company

finishes it and to the trimmer, who puts on the curtains. *The routine is so well established that one man never has to wait on another to receive the work.*

The sizes of lumber for various types of cabs are standardized; the order comes from the office with the sizes and number of pieces designated. The order is so definite and clear and the lumber is so well arranged on the shelves that a new and unskilled man could assemble the cab.

Incidental to the separation of the cab lumber, one man does all the drilling of the holes and he becomes expert in this work.

A few features of the office end of the business are also eliminated. Every order for a job is issued from the main office of the Dougherty company in triplicate. One copy is retained, one goes to Simon and one to the shop. On the back of the shop copy are entered all the items that enter into the cost of the job. In this connection it should be mentioned that the cost of labor in stock, lumber, paint, etc., is added to the value of the stock, not only the cost of preparing lumber for use but the wages of the stockman too.

The bookkeeper at the shop, by referring to time tickets, can add to the record on the back of the order, which record also already has the entrees of stock used and the time of workmen on the job. A certain proportion of overhead is added to each job—and after all the costs are accounted for the profit is added before the final figure—which is called the cost—is attained.

A minor feature of the order plan—but important—is that the copy which goes to the shop is on cardboard.

The system that has been worked out has proved valuable to the Dougherty business. It has solved many war-time problems and is enabling the company to make up for some of the volume of business that abnormal business conditions tend to decrease.

The God of Luck

WHY is it that business men have no conception of the motor industry as a business?

A prominent business man came in to me and talked trade. He had a car a few years old. I quoted him my figures and he wanted to know if I expected him to give his car to me, that a used car dealer offered him more.

How much are you getting now for your Blank brand hosiery? I asked him. He told me that the price was $6 a dozen pairs. Then I asked him if those were not the same sort that he sold for $3 and $4 a dozen a year ago and he agreed that they were. Why have they advanced? I asked him. Because materials, labor, everything has gone up in cost, he said.

Well, don't you suppose I'm feeling it, too? I queried. Don't you realize that I am paying more wages, more rent, more light and heating bills to do business; that my overhead has increased like yours, and yet my commission has remained the same; that out of this commission must come my expenses, and I must maintain a service station to take care of you when anything happens; that the used car dealer bought the car, or sold him something else, and that ended the transaction, with no come-back?

Here was a business man who was boosting his prices to meet competition and I was paying his prices for my wearing apparel without any kicking, yet the minute he turned to buying a motor car he looked upon it as outside of the ordinary business channels. Finally I convinced him that business was business no matter what was sold. It seems to me that motor dealers are responsible for this sort of thing by over-priced trading, and only a providential shortage now is coming to rescue them. *The God of luck seems to have a penchant for hovering over the motor industry to save dealers from themselves.*—Alfred Cutler Morse, Boston, Roamer and Westcott.

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Any Rags, Any Bones, Any Bottles To-Day?

Does the Jobber's Salesman Sing the Same Old Story in the Same Old Way?

YEARS ago we used to sing the song and we never thought at the time that it had any application to salesmanship, but lately there are some who maintain that the man who wrote it was a jobber and that he wrote it just after he had kicked all his salesmen out of the conference room with directions to go out on the road and sing a new song and build up some new business.

Whether they did or not isn't explained, but it is asserted that there is to-day a rather large army of jobbers' salesmen who are still in the order-taker class and are passing up the big opportunity for increasing their sales and tying the dealer to the jobber by a chain of good-will.

Two Types of Salesmen

Jobbing salesmen may be classified as of two types: Those who think and those who don't think. The latter sometimes think they think—but they only think they think they think.

The salesman who gets ahead is the one who thinks. He gets ahead because he builds business and becomes a valuable man. Sometimes he becomes so good and proves to be such a thinker that he cuts loose and sets up in business for himself. He does all these things because he thinks.

If he plays pool evenings he thinks as he plays pool. If he plays poker he thinks as he plays poker. One of the most revolutionary thinkers of the business world got his idea for a revolutionary business system out of a poker game.

He Doesn't Think

The non-thinking salesman, when he plays pool, simply sees so many balls, a green top and the spots where countless cigarettes have decorated the edge of the table. If he plays poker he regards it as something with which to kill time until he once more has to resume the monotony of existence.

It is said of the non-thinking salesman that he walks into a dealer's store—or what ought to be a store—and operates somewhat as follows:

> ANY rags, any bones, any bottles to-day? It's the same old story in the same old way.

"Well, Bill, what is it to-day?"

"Oh, I don't know."

"Let's see your want list."

"Here she is."

"Oh, yes. Patches, anti-rattlers, carbon remover, priming plugs and piston rings. I'll shoot 'em down to you real quick, Bill."

"All right."

"DidjahearthisoneBill?"

And they're off, as the kid said when he stuck his fingers in the lawnmower.

What Happens Then

The house ships the goods, the dealer puts it in stock, he sells some of it to insistent customers, he pays the bill—sometimes, when he happens to think of it he adds to the want list—and so the wheel goes around. It can't go around much faster because there is no one to inject the necessary lubricant and acceleration.

At some of the conventions of the National Association of Automobile Accessory Jobbers there has been a little discussion of the question of the jobber's salesman and how to make him a more important factor in the motor trade, but thus far nothing very drastic has been done. Once in a while somebody spills a bit of stuff on the subject, but the routine business of the meetings gets in the way, everybody wants to have the convention end on time and so the poor jobbing salesman goes happily on his way without anybody telling him of that beautiful heaven to which all salesmen go if they work right. *He remains a heathen because he never got to Sunday School.*

At the present time there isn't a more important subject in the jobbing trade than that of the jobbing salesman. Manufacturers are turning out goods, advertising and promotion are paving the way among retail customers, jobbers are stocking the goods to meet this demand, dealers are anxious to make money but not all of them know how, and the jobbing salesman, a most important section of pipe in this outlet of merchandise, creates a sort of bottleneck through which only a certain amount can go. No matter how much is manufactured it can't get into distribution unless the jobbing salesman lets it—or forces it out. *Consumer demand can help, but of itself it is an inefficient mover of goods.*

There are different ways in which the jobbing salesman can acquire a new song, a constructive story, a new viewpoint of life. The jobber can develop educational facilities within his own organization. The inspiration can be passed out in varied forms, but in the end the new song will be much the same.

Two Kinds of Dealer

To-day there are two types of dealer. There is the accessory merchandiser who really sells a lot of goods and makes money at it. He has a good store, good display fixtures, good window, good sales methods, a good stock wisely bought, real cost analyses and a business system that develops his sales possibilities to a high degree.

This man is the star on the jobbing salesman's list. He buys goods freely—and rapidly depletes his stock. He then buys more. It is a pleasure for the salesman to call there because he knows he is going to sell goods.

The other type is in need of help. His store and display methods and facilities are poor. He doesn't know how to sell goods. Often he has been a mechanic or has followed some line of work that didn't teach him sales and business. He can't be expected to become a hundred per cent merchandiser over night. But he can be expected to have a little spizz and enough energy to keep going along the right line if some one gives him a push now and then.

Pushing the Flow

This dealer is the final "pinched spot" in the pipe line of distribution. The "pinched spot" just before is the non-

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thinking jobbing salesman. The two of them can do more to hold up the accessory factories than a dozen Garfield orders.

The thinking salesman reasons thus: "How can I increase my sales? Answer: By getting the dealer to buy more.

"How can the dealer buy more? Answer: By selling more.

"How can he sell more? Answer: By my teaching him to sell more."

Wherefore the thinking salesman gets after the unprogressive dealer and makes a merchandiser out of him, thereby increasing the salesman's orders, building up the jobber's volume of business and making the factories spin faster and faster. Incidentally the dealer outlet is made larger and larger and the activity and increased prosperity expand all up and down the distribution line.

Having asked himself: "How can I teach the dealer to sell more goods?" the jobbing salesman begins a systematic campaign.

Must Be a Diplomat

He can't rush into a dealer's store, bawl him out and black-snake him into being a good merchandiser. Human beings aren't reformed that way. The salesman must be diplomatic. He must warm his way in. *He must acquire goodwill.* Just how he shall do this is largely up to the salesman.

But let us suppose a typical example: Casey runs a garage. He has the usual four-square building with one corner called the repairshop, one corner called the stockroom and another small section alleged to be the office. Almost any part of the whole layout looks the same.



Casey couldn't sell accessories on a bet in an atmosphere like this.

What must the jobbing salesman do?

First, he must get Casey to clean up the place.

Second, he must install an adequate office and equipment.

Third, he must put in display fixtures and a stockroom.

Fourth, if there is a window he must make it work. If there is no window he must make one.

Fifth, he must teach the dealer how to advertise, how to sell, how to use road signs, how to get customers, how to net profits and how to be a worth-while factor in business.

Makes Outlet for Goods

If he can do all these things he can make a good dealer for himself. Eventually he may lose the dealer—but he won't lose all of them. Furthermore, the dealer will consider the salesman as a co-operator, a fellow worker, a benefactor. The good-will the salesman creates can never be taken away from him, because good-will is that sort of product.

But, to go back to the beginning, how is the jobbing salesman going to get Casey to clean up the garage, a department which, supposedly, has nothing at all to do with the salesman's particular line of business. Isn't the dealer going to consider the salesman as interfering in something that is none of his business if he tries to stick his finger into the garage end of the establishment.

How It Might Be Done

Certainly! But, as was said before, the salesman must be a diplomat, a thinker. He must get on good terms with the dealer, they must discuss business, future prospects, competition and all sorts of things. And then some day in a casual off-hand way the salesman may say: "Casey, do you know, I've often thought I'd like to run a garage and try out some of my ideas. I think I could make some money. What do you say to you and me trying them out in your garage?"

Or: "Casey, did you ever figure out how you could get a lot of business away from your competitors? I'd make my garage talked about. I'd make it different from the rest. I'd—" etc., etc.

Some such start as that might be made. And then the salesman could point out the condition of the other garages and suggest a clean-up, paint-up campaign. He could camouflage the whole idea by saying he proposed to advertise for female trade, and make the clean-up one of the first steps toward this camouflaged ideal.

Each Man Help Himself

There are all sorts of ways the salesman might warm his way in. The exact method is something each salesman must work out for himself. *If he is a good salesman fundamentally he will have no difficulty on this score.*

After that, he must get Casey interested in costs and accounting. He must cite a few examples of it costs So-and-So so much to keep a car over night and that So-and-So spends such-and-such per cent of his gross business for newspaper advertising. By citing what others do *Casey's mind may be made fertile for the seed of suggestion as to figures in his own business.*

From these things the movement goes step by step to the point where Casey has a clean, attractive garage, a neat office, good accessory display fixtures, a real window display and good advertising and is using manufacturer's literature as inserts in his outgoing mail, *which mail is written on a typewriter.*

Then the salesman shows Casey how to sell. He teaches him how to carry a windshield cleaner in one hand while he takes gasoline change to the transient customer. He shows him how to adjust it quickly, demonstrating how it works. He instructs Casey in pushing slow-moving goods and helps him along the road to greater profits.



Finally the dealer arrives at the point where he is making money—but now and then problems arise. He wants to know things. And where does he naturally turn?

Where else but to the man who has come with him step by step all the way from greasy overalls and a daily wage to a starched collar and real net profits.

Ponder This

Take this thought: It is the jobbing salesman's chance to demonstrate the old statement that from his chin down a man is worth only $3 a day. It is the salesman's chance to take himself out of the class that sings:

"Any oil, any soap, any patches to-day?
"It's the same old story in the same old way."

Ford Philadelphia Plant Not Commandeered

PHILADELPHIA, May 17—Louis C. Block, general manager of the Ford Motor Co. here, announces that following a voluntary offer of the company to allow the United States Government the use of a portion of its $1,000,000 ten-story building, the United States Army Quartermaster's Department has availed itself of the opportunity and taken over six floors to be used for storage reserve purposes. The building has not been commandeered, as at first announced, the arrangement being a purely co-operative one, in accordance with the wishes of Mr. Ford, expressed since the company has been working on large government contracts.

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The Tire Dealer's Part in National Conservation

By G. E. Brunner
Manager, Service Department, The Goodyear Tire & Rubber Co., Akron, Ohio

AS a nation we are tremendously wasteful and always have been. We are wasteful of natural resources, of man power and of finished products. But we have come to the point in our happy-go-lucky existence where we must stop wasting and conserve—or cease to exist.

The automobile industry has been typically wasteful, not so much in its use of raw materials as in the distribution and consumption of its many products. And it has been extraordinarily wasteful of man power. As a result of the popular impression this wastefulness has created, and in spite of the tremendous industrial importance of the automobile, the government at first classed it as a luxury.

Now one of the biggest wastes in the automobile industry takes place right here in our own part of it—the tire business. Last year it was estimated that over $150,000,000 in tires went out of service prematurely. And a good many million dollars' worth of man power went into wasteful channels in unnecessary and extravagant forms of free service. Now this waste must absolutely be eliminated if the industry is to go on.

Tire Dealers Can Help

The tire dealer who realizes this and gets his business in such shape that wastefulness is done away with is the one that will survive. There is no place for an exaggerated service at this time. Service must add directly to the value of the product or to the prolongation of its usefulness, or it is unnecessary and a waste, and as such must be eliminated.

The service that is needed to-day is the preventive service that teaches the tire user how to use his tire properly and how to foresee and prevent troubles before they start. This is the kind of service that must be rendered by every successful tire dealer. The purchaser of a new tire must get proper instructions in using that tire, and these should be made so clear to the customer that the chance will be better than ever that he will get full mileage from it.

Tire Users Must Be Shown

In cases where he does not get full service he should be given such follow-up instruction and advice as the condition of his tire shows he needs. His own injured tire should be made an illustration of the necessity of paying attention to the laws of tire conservation.



G. E. BRUNNER

When the customer sees how failure to follow the advice given him when he bought the tire causes its premature demise there is not much question about the care he will give his next tire.

In case the tire still has some service in it, the customer should be shown the advisability of having it repaired or put in condition to give extra mileage by the use of some inexpensive tire-saver. He should be made to realize the extravagance, under present conditions, of taking any tire out of service as long as there is mileage left in it.

In cases where the tire is completely worn out because of neglect or abuse, the cause of the trouble should be made so clear that there would be little likelihood of the customer having the same kind of trouble with another tire.

User Must Pay for Own Experience

There is no sound reason why any one but the owner should pay for his own mistakes and experience. Neither the dealer nor the tire manufacturing company can afford, at this time, when conditions force him to operate his business most efficiently, to sacrifice any profit or take upon himself any loss that should be borne by one of his customers. For if he does take this loss he must either go to the wall or pass it back to the other customers from whom his profits are derived.

While it is frequently hard for the direct representative of a tire company to make a man understand that his failure to get good service from his tires is really his own fault, and that the loss should be borne solely by himself, it is not so hard for the dealer to point this out. In fact, the dealer can generally gain additional good-will from the customer by showing him his mistakes and how to eliminate them in the future. Then he is in position to sell a new tire and make his legitimate profit on it.

Policy Adjustment Expensive

The policy adjustment is one of the things that has made the use of tires so expensive. It is decidedly out of keeping with the spirit of the times. It is opposed to the idea of conservation. It is the direct encourager of prematurely worn out tires and of wantonly wasted tire mileage.

The place where this waste can be eliminated is the service station. But, so far, only a few service station dealers have recognized the advisability of operating on this basis. As a result a great preponderance of tire replacements are policy adjustments, which hand the customer a tire to which he is not entitled simply to keep him from purchasing a competitive make of tire. Each one represents a tire worn out because of misuse or neglect, *lost profit to the dealer, increased overhead expense for the tire manufacturer and an unnecessary consumption of the country's economic resources.*

The following is an actual case in point: A motorist brought in to his dealer a 33 x 4½ tire for examination. After looking it over carefully the dealer, who conducts a tire repair department, found that the carcass was in good shape and offered to retread it for $17. The motorist then took his tire over to the tire manufacturing company's branch and asked for an adjustment. The adjuster, to "hold him in line," extended *one of his policy* adjustments and gave him a new tire for the old one and $25.

Now it should be remembered that this was not a defective tire. The motorist had received good mileage from it and, aside from the poor condition of the tread in places, it was in good condition. Yet the tire company gave him a new tire at a loss; *the dealer lost the job of retreading and made nothing; and the motorist got a new tire to which he was not entitled.*

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Now, had the dealer secured the job of retreading the tire, he would have made a good profit, the tire company would have made its profit on the materials used in the repair, and the new tire would have been available for another customer who would have been glad to pay the regular retail price. And, above all, the motorist would have been completely satisfied with the extra mileage he would have secured from the retreaded tire.

A truth that must be impressed on the tire using public is that tires, and not adjustments, furnish the basis of satisfactory mileage. A motorist who buys a good tire and takes care of it obviously gets greater satisfaction than the one who is continually teasing his dealer for an adjustment. Usually the motorist who is shown the greatest favors, from a "policy" standpoint, is the first one to switch to some other tire, if his adjustment favors do not come fast enough. So after continually losing your profits in adjustments on non-defective tires, you lose your customer too.

If manufacturers in other lines, take the shoe people, for instance, were to be as liberal in adjusting shoes as the average tire dealers and manufacturers are in adjusting tires, the leather stock of this country would be depleted immeasurably.

And at this time when it is so difficult to obtain rubber from the great plantations of Asia and the Malay Archipelago, on account of the great scarcity of ships for transporting it across the Pacific, it behooves everyone connected with the manufacture, sale or use of tires to conserve to the limit. And the tire dealer is going to play a very important part in future conservation of tires, for it is through him that conservation principles must largely be preached to the great army of tire users in this great country.

Farm Tractors Increase Crop Acreage

ONE of the outstanding facts of tractor operation is that in a very large proportion of instances the tractor owner increases his crop acreage. Sometimes this has been accomplished by bringing more acres under tillage on the original farm, but more frequently the farmer has found his capacity for work so increased by the tractor that he has acquired more land by purchase or lease.

This has come about not altogether because a tractor increases the efficiency of the farmer, thus enabling him to till more acres, but also because it has been determined that it is more economical to till larger areas where the work can be done with a tractor.

Should Be Used 50 to 75 Days Yearly

According to the capacity of the tractor, its economical employment demands that it be used from 50 to 75 days in a year. This includes belt work as well as draw bar work. The farm of average size, under old-time crop rotation methods, does not ordinarily provide sufficient work for a 10-20 or a 12-25 tractor to make up the required economical number of days. Hence the tendency to increase the acreage.

Gathering Statistics

Accurate cost accounting is not common with farmers, hence it is difficult to procure reliable figures on the cost of tractor operation. Occasionally, however, some one who has the ability to do so collects information which has a degree of validity. For instance: A trained statistician from the extension department of the Minnesota School of Agriculture recently compiled some statistics covering tractor operation in Kittson County, Minnesota. Fourteen tractors were considered. These tractors on the average worked 80 per cent of their time on straight tractor work, and 20 per cent on custom work, a fact which was allowed for.

The cost of operation was based upon amounts of fuel and oil consumed in plowing, on 80 per cent of repairs, interest and depreciation, and on the value of the food saved by the substitution of the tractor for horses in performing the operations considered. The results showed that where a tractor plowed less than 300 acres the cost was $1.99 per acre, while the cost fell to $1.24 an acre when more than 300 acres were plowed.

Not too much dependence can be placed upon a single instance, of course, but this one has unusual value because of the great care which was exercised in compiling the data. However, whatever value may be denied to the findings as being typical of tractor operative cost in general, the fact that it is more economical to employ the tractor on larger areas is established, and this is the important thing.

Acreage Increased

Whether farmers who have heretofore increased their acreage have done so in the consciousness that it was economical so to do does not matter very much. The fact remains that the acreage was increased, and that it was economical so to do appears to be a legitimate conclusion from such facts as are at hand.

Stock of Tractor Parts Must Be Easily Available

ASIDE from all other considerations, perhaps the most important thing for the farmer who purchases a tractor to know is that an ample stock of repairs is conveniently accessible. The economic value of the tractor rests upon its constant and instant availability to handle the peak load of the farm at the time and within the time when it is most important and advantageous for the farmer. Anything which interferes with or interrupts this readiness and efficiency tends to destroy the entire theory upon which tractor farming is based.

Assuming that the farmer is competent to meet the common motor difficulties which arise in the operation of a tractor, he need then fear nothing serious except the breakage of parts. This is liable to occur at any time. Parts never break, however, when the machine is standing in the shed, nor during the off season, but always when the tractor is at work and when delay of any kind is a serious matter. Should delay be prolonged because repair parts are not immediately available, it might easily spell calamity. The man who relies upon his tractor to do the heavy work of his farm virtually has put all of his power eggs into one basket *and he cannot afford to have anything go wrong with the basket.*

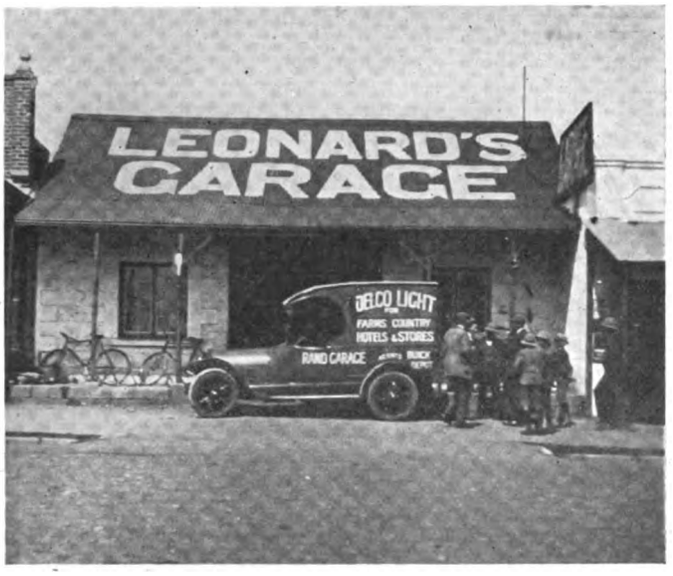
This emphasizes the important part the tractor dealer must play in tractor economy. His obligation by no means ends with the sale of the machine. It persists throughout the life of that machine to the extent of being ready at any and all times to provide such repairs as may be needed to keep the tractor effectively at work. This necessitates carrying in stock an ample supply. The amount of capital which may be tied up in this way is of small consequence in comparison with the amount of good-will and the reputation for preparedness which the dealer will establish.

The automotive dealer can in no better way justify his claim to the title than by being in a position instantly to meet demand for repair parts on the tractors he sells.

Continental Has $20,000,000 in Orders

DETROIT, May 20—On April 30, when the first half of the fiscal year of Continental Motors Corp. ended, the orders on its books, in process of manufacture and unfilled, amounted in the aggregate to more than $20,000,000—a considerable gain over the situation at the beginning of the fiscal year. Large additional orders have been received from the Government.

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A typical garage in a small South African town of 5000 people. This is Leonard's Garage at Standerton. He sells farm lighting systems

Dealer Sells

Farm Light System

in

Wild South Africa

Even though the country is semi-developed and the difficulties are great, this South African dealer is making profits out of the farm-lighting system.

By M. Edward

THIS story is written by M. Edward, Motor World's special representative in South Africa. Edward operates an advertising, photographing and news service in Johannesburg and is familiar with conditions in America as well as in the Transvaal, for he visited the United States some time ago and studied comparative conditions. His work keeps him in close touch with motor car conditions and the trade in South Africa.—EDITOR.

JOHANNESBURG, SOUTH AFRICA, Feb. 28—The farm-lighting system has made a strong appeal to the motor car dealers of South Africa, who see in it a fine addition to the modern products they have for years sold to the farmers of this prosperous territory.

Farm light is especially salable because there are many farms so far from electric lighted towns that the use of city light is practically an impossibility. The country contains many farms whose owners are abundantly able to buy these systems and who want to make their country homes as livable as possible.

One of the first to take up the farm-lighting system is the Rand Garage, Johannesburg, which is the Buick dealer and distributer. After securing the agency this dealer fitted a 1917 Buick with a specially constructed body, carrying a complete Delco set.

With this outfit it is possible to demonstrate to the farmer who lives away back, hundreds of miles from the towns. Much business has been done by this means, although the terrible condition of the

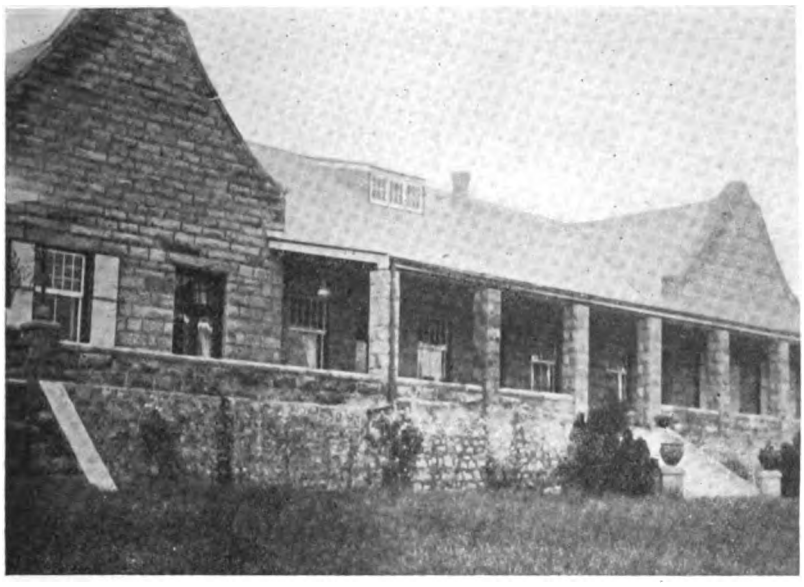




Upper—When the farm light demonstrating car goes out in the country on its merchandising mission it traverses such country and covers such roads as this. Not unlike our own rolling prairies, is it? This is Ermelo

Lower—Little things like bogs are no discouragement to the South African dealer, and they are not unknown to our own country dealers. But what of it? Each trip means more business

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What would this place be without electric light? It is "Rusthoff," the residence of General Botha, and he has installed a Delco plant to lighten the labor on his farm



General Botha himself is the man in dark clothes, seated in a chair, watching the installation of the Delco plant on his property

roads, due to a very rainy season, has made the task difficult.

Many times oxen have been called into service to draw the stalled demonstrating car out of bogs and mudholes, which are encountered frequently in the middle of what are supposed to be the country's regular roads.

The first trip over the Transvaal required two weeks, yet during that time the car covered 400 miles and dealers were secured in many of the smaller towns of the country. The demonstrating car also sold an outfit to General Botha, the Premier of South Africa, whose farm the car visited.

This pioneer trip convinced the proprietors of the Rand Garage that there is a big future in the farm-lighting system as an adjunct of the motor car business, and plans are being made for an active campaign for merchandising this article throughout the Transvaal.

Country conditions here, as affects the farm lighting system, are not unlike those in the American West, where the areas are great, the homes not always close together and the prosperity generally sufficient to make the farmer an excellent prospect for electric light and power.





Upper—Crossing Blesbok Spruit, one of the many unbridged streams that become impassable during the rainy season. But the farm lighting dealer makes money when the sun shines and does his business before the rains swell the streams

Lower—In America the farmer who hauls you out with a horse is a familiar character. They have him in South Africa, except that he does it with a couple of yokes of oxen. It's all in a day's work for the farm lighting dealer

Army Schools Want Catalogs

DETROIT, May 17—The Department of Mechanical Engineering, Michigan Agricultural College, East Lansing, Mich., which will train 500 soldiers along the lines of automobile mechanics and automobile repairmen, would like to receive copies of all trade literature, such as catalogs, instruction books, etc., possible. Concerns desiring to assist in this should address their matter to J. A. Polson, Professor of Mechanical Engineering, Michigan Agricultural College, East Lansing, Mich.

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You Can Fool the House for Quite a While BUT You Can't Fool Yourself for a Single Minute

By Ray W. Sherman

"WHAT shall we do about young Roper?"

Tommy Trumbull, sales manager for C. J. Reilly, Inc., distributer of the Sennett in and about Callawassa, turned to Reilly with this inquiry about one of the young lads who had been added to the sales force some time previously. Most of the youngsters were panning out well—but Roper, while he started well, didn't seem to be holding up to par.

"I don't—" Reilly started to reply, but just then young Roper walked in—at 9.30 in the morning.

"Gee, but I had a bad morning!" he exclaimed, as he hurried toward the desk.

"Yes?" Reilly's inquiry was short.

Roper hastened to explain: "Yes, I'm sorry too. It cuts fearfully into a day's work. I'll have to spin some to make up for this lost time. Wouldn't wonder but I'd have to work some this evening to get up to schedule."

Neither Reilly nor Tommy said a word.

Poor Mother

"Mother didn't feel at all well this morning," Roper rambled on. "She had quite a bad spell. I thought for a while it might be serious. I was quite alarmed for some little time. But I left her resting comfortably. And to top it all off I had to wait twenty minutes for a street car. You know, things like this upset me so I can hardly work."

Roper began to dig out prospect cards and gave an excellent imitation of a late-arriving young man trying to give an appearance of doing an hour's work in five minutes.

Roper made hurried notes, stuck a couple of booklets in his pocket—and started out, almost on a run.

"Oh, Roper!" Reilly called.

The young salesman stopped like a boat that is snubbed by an amateur.

"You've had a bad start this morning. Why don't you take it easy for an hour or so and get your mind settled. There are one or two things we ought to talk about. We haven't looked over your files together in a long time. Let's do it now. Then you can make a better start by and by."

"All right!" Roper returned and hung up his new straw hat—which was so new it hadn't even been sprinkled on yet.

Reilly drew forth the master file summary of Roper's work, and Roper brought over his own individual file.

"Let's see," began Reilly. "Sales—sales—let's see. Three months—one touring—one roadster—one touring—one used car—four sales in three months. Not very good, do you think?"

"Well—" Roper explained. "You see, I've done a lot of work that should result in sales later on. If you will look at the past record you will find that I did well the first three months. I sold ten cars. But lately I've been doing a lot of missionary work and—"

"Yes," Reilly interrupted, "your cards indicate something of the sort. You have turned in the usual number of calls each day and the record indicates that you must have been very busy, but don't you think it's rather unfair to you to keep you on a line of work that isn't producing sales? Wouldn't you rather be selling than playing missionary?"

"Yes, I would!" It was the only reply Roper could make.

"Now—let's see—where were you going this morning?"

Roper drew forth several cards.

"Oh yes—Sanderson—steel mill man—been called on six times—says he's going to buy later—seems interested, and all that. H'm. Griffin—undertaker—needs a new car—had his old one two years—wants new car, but says business is bad—may buy later."

"Yes, it has been hard pushing on some of these fellows!" declared Roper.

Hard Work, but—

"It surely is hard work to sell cars," admitted Reilly. "I wasn't quite sure I could do it myself—but—" and here Reilly drew from his pocket and laid before the wide-eyed Roper a signed order by Sanderson for a sedan and with it the check for payment in full.

"Last evening—golf club—five minutes of conversation—easiest sale I ever made." And, answering Roper's unasked question: "He said he had been thinking about the car for some time. He said somebody or other from our office phoned him once in a while or mailed him a catalog, but he said he never got a chance to give anybody his check. He seemed really relieved when I volunteered to take it."

Roper said nothing. If the moisture that oozed out from under the hair on his brow could have dampened the inside of his throat he might have been able to speak.

"Roper—," Reilly looked squarely at the young salesman, "let's quit kidding. I don't want to kid you—and you can't kid me—only so long. I'm not an old cock by any means—even if my thatch is thin. I get around this town some, and while I don't believe in playing spy there are some things I can't help hearing.

"Now—you've got a new girl, and between you and me I don't think she has all the sense she ought to have or she wouldn't let you waste time on her the way you have. I know the tea room in the Mortcroft is a cosy little place, it's cool, they have fine music, the floor is great, you're young, the temptation is great—but it doesn't sell cars. Am I right?"

Roper said nothing, so Reilly continued:

"In your position you are placed on your own responsibility. Your time is your own. You have a drawing account, and that's the only string I have on your time—but I do expect results. You can spend all the time you want to in tea dances, you can lie in bed as late as you wish in the morning, you can come in any time you prefer in the morning, but when you get to the point where you are hurting the company's sales business I maintain that I have a right to protest.

"These fly-in-and-fly-out calls you make on prospects, these phone calls that you make just so you can report so many calls a day, and all this other camouflage hurt our business. You either antagonize prospects or else get them warmed up for some other man to get. An on-the-job salesman could have stolen this Sanderson order from under your nose—and you wouldn't have had any explanation. These prospects have been found by this company at a big cost, and whenever you ruin one you hurt our business.

Can Get Big—Sometimes

"You can make reports that look fine, you can seem as busy as a bee, you can cover up and get by, you can— Roper what time did you get up this morning?"

"Quarter to nine."

"What was your mother doing when you left home?"

"Washing dishes."

"How long did you wait for a car?"

"I rode down with a friend in his motor car."

"And for three months you have been hurting and fooling yourself. Your tea dance friends won't care to associate five years from now with the man who isn't a success. Buildings are built by work—not on reports and blueprints. You can fool the company for quite a while, Roper, but you can't fool yourself for a single minute.

"Now—" Reilly patted him on the back. "Let's start all over again."

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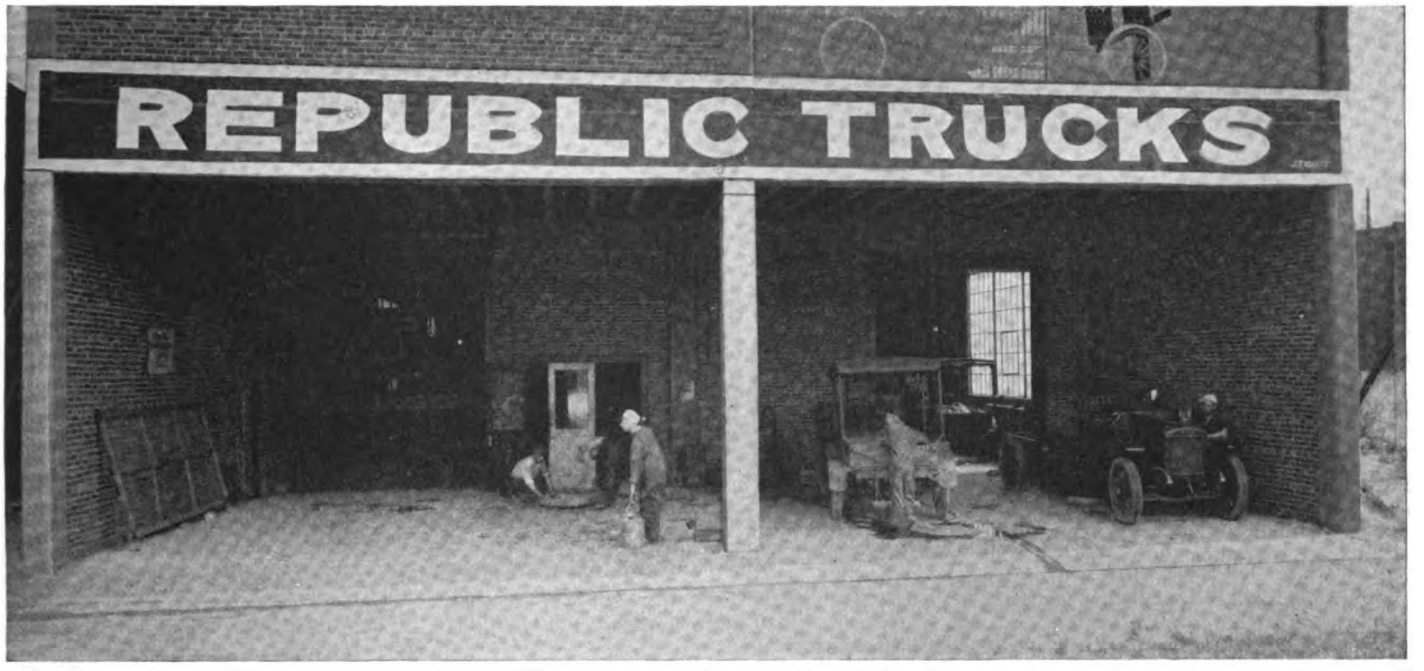


Fig. 1—A service entrance of this kind will relieve congestion in the truck repairshop, and thus speed up service. This is the Martin-Whitehill Co.'s Republic truck service station entrance in Pittsburgh

REQUIREMENTS of a Truck Service Station

By S. T. Williams

THE first thing that a passenger car dealer has to get into his mind when he starts to handle trucks is that it is going to cost him more to give adequate service on trucks than it did on passenger cars.

First, he cannot accommodate as many trucks as passenger cars.

Second, the work is heavier work, and requires special lifting devices.

Third, the amount of work done by any one mechanic is less.

All these factors tend to increase the shop overhead and decrease the income unless correspondingly increased charges are made to compensate for the increased expense. And adequate service is necessary to successful truck merchandising even more than in passenger car merchandising because a truck is a utility, a necessity, and a passenger car may or may not be.

Given the same service station as was used in passenger car work, when trucks are introduced, the capacity of the station is about cut in two. Many trucks occupy a space of about 22 x 10 ft., as against the passenger car's 15 x 7 ft. And the aisles must be wider, as it is not an easy matter to jack a truck up and slew it around on slewing castors.

If an elevator be used, the average passenger car elevator will be found

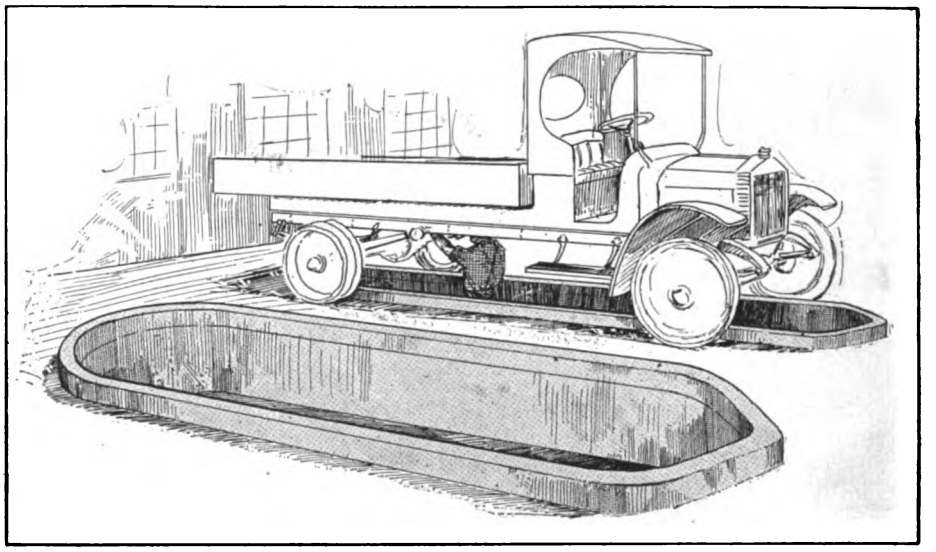


Fig. 2—The use of pits in the truck repairshop eliminates much of the heavy lifting

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too small. General practice seems to recommend a 22 x 10-ft. elevator of about 10-ton capacity. And if old buildings be used a competent building inspector should be consulted to see that the floors possess ample strength to carry the trucks that will be placed upon them.

Give Minute Service

One way that many truck service stations avoid congestion and the necessity of moving the trucks about is by the use of a minute service entrance, shown in Fig. 1. This entrance is simply a large three-sided room at the rear of the station. All trucks requiring minor repairs or adjustments are run directly from the street into this room and the work done immediately. It is easier and cheaper to bring the tools, mechanics and parts to the truck than it is to bring the truck into the repairshop. *A quick service entrance of this kind will do much to lower the overhead, relieve congestion and speed up truck service.*

Pits are not an absolute necessity in passenger car work, as it is an easy matter to hoist the car up on racks and render all parts accessible. But the tendency in truck repair stations, where the best practice prevails, is to provide a pit for each repair stand in the repairshop. They are either wood or concrete, about 3½ ft. deep and provided with a guard rail that not only guides the truck into place but also prevents it from running into the pit. By the use of a pit of this nature all parts are instantly accessible, the mechanic can work from a comfortable position and frequently the necessity of hoisting or jacking the truck up is removed. Thus the mechanic can do more work.

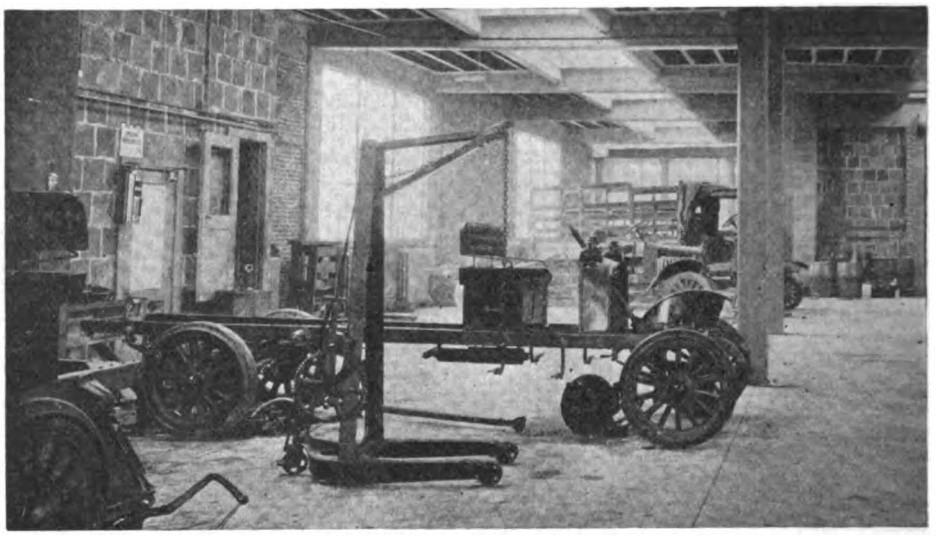
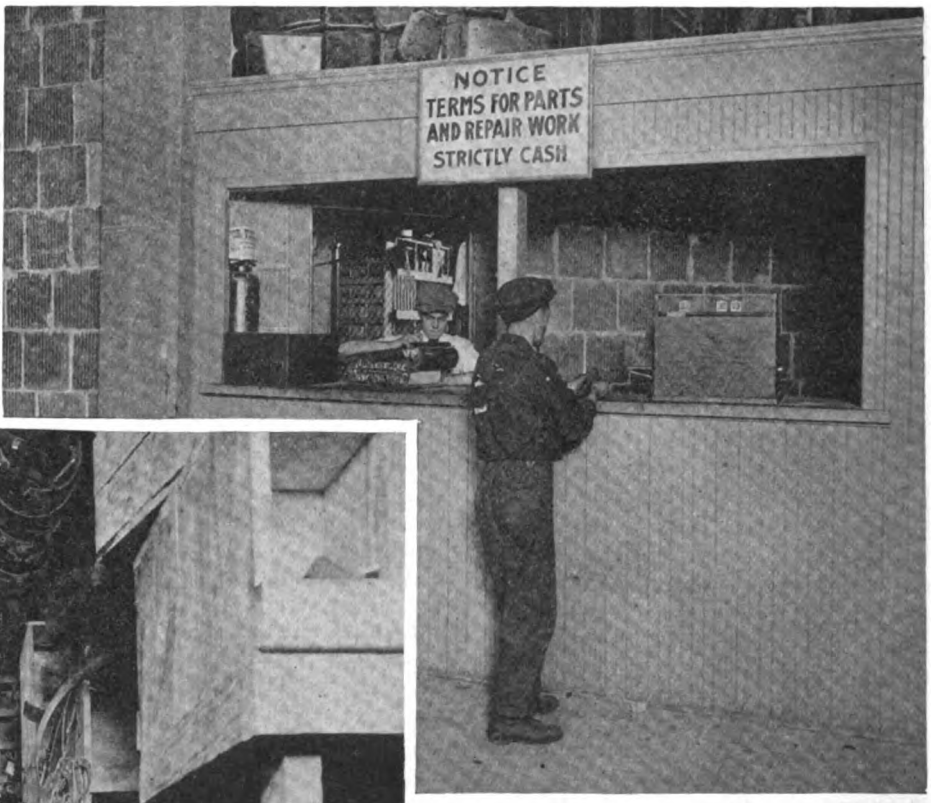


Fig. 2A—A properly organized truck service station should be equipped with some sort of a crane for heavy lifting. If the ceiling beams can be used, this is simple; otherwise a portable crane should be provided





Figs. 3 and 4—A well-arranged stockroom is essential. This shows the stockroom of the Martin-Whitehill Co., Republic dealer in Pittsburgh. The view above is the window through which parts are passed

Hoist a Necessity

Likewise, in passenger car work an overhead traveling hoist is often regarded as a luxury. But where much truck service is to be given it is a necessity. Truck units are heavy—usually far too heavy for one man to lift—but with

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a 5-ton chain block and an overhead traveling hoist the parts can be lifted, moved or assembled with ease. And in the smaller shops the portable shop crane answers the same purpose.

In addition to the above equipment, the usual machine tools, etc., are necessary. The amount depends entirely upon the number of trucks receiving service, the distance of the station from the source of supply of parts and the ability of the mechanics. The following are the tools that the average truck repairshop has found necessary:

1—Forge, anvil and hammers.
2—Large capacity arbor press.
3—Air compressor and air hammer.
4—No. 20 power drill.
5—Sixteen-inch engine lathe.
6—Twenty-five-inch heavy shaper.
7—Bench grinder.
8—Welding outfit.
9—Portable crane.
10—Miscellaneous tools.

Inasmuch as trucks are only machinery, and every minute a truck is laid up money is being lost, it is necessary that the dealer have an adequate supply of repair parts on hand. For these a stockroom should be provided, and if the arrangement be that shown in Fig. 3 but a small amount of space is necessary.

The smaller parts are placed in bins around the walls and the larger parts, such as axles, springs, etc., are placed on racks in the center of the room. The heavier parts are on the lower racks and the lighter parts on the top racks. *This avoids much unnecessary lifting.*

By making the stockroom only a half story high the space above may be used for storage of sheet metal parts, such as mud guards, hoods, splash plates, etc. And the stock should be placed in charge of a competent clerk who is accountable for every piece that leaves the room, keeps the stock up to normal, and who usually has time to handle all of the shop system work.

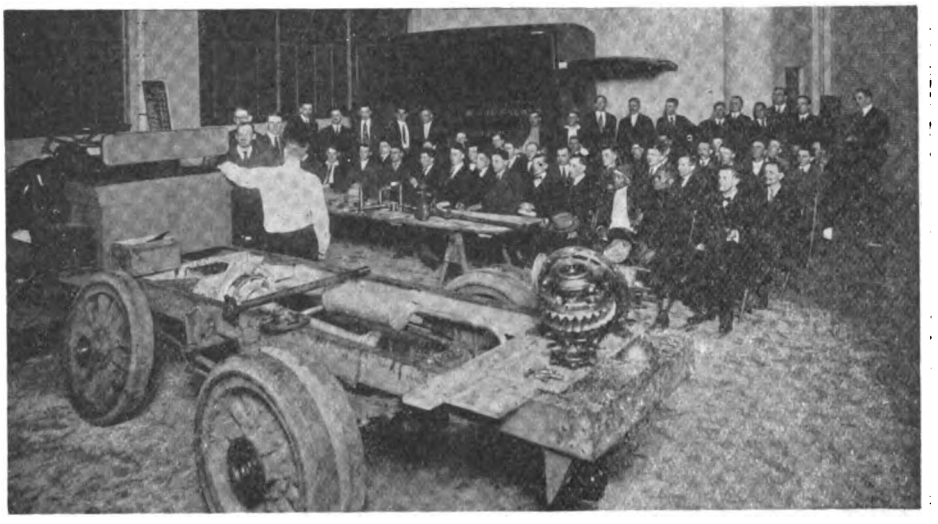


Fig. 5—Truck driver school conducted by the Pittsburgh Packard Co., Pittsburgh

It was stated that truck service costs the dealer more to give than does passenger car service—yet that efficient service was essential to successful truck merchandising. Several methods that have proved successful in reducing truck repair overhead, and increasing the capacity of the shop have been given. But the live merchant can do more than this. He can and should *educate the drivers of his trucks to give the trucks a chance. For it is cheaper to prevent a disease than to cure it.*

The treatment a truck receives is far different from that received by a passenger car. First, the owner is rarely along and the tendency to speed, overload and abuse the truck is not restrained. These, combined with too infrequent lubrication and inspection, tend to make the truck depreciate much more rapidly than it should. When the truck is in use it is in the hands of the driver *—so educate the driver, cut down the necessity for repairs, and remove the necessity for service.*

Many truck dealers conduct a school for all drivers of their trucks. Meetings are held weekly, or monthly, as necessary, and the drivers are taught to make all the common adjustments and repairs on the trucks. They are taught the necessity of lubrication and inspection and the effect of overloading and overspeeding. They learn that they are in charge of a large investment and that only by making that investment pay can they increase their earning power. In the places where truck schools have been held by the dealers a marked decrease in the service problems has been noted.

Truck business is profitable business. *Educate your drivers, provide an adequate shop and give service on the basis that future business depends on present service.*

Converted Trailers Increase Truck Sales

A CONSIDERABLE number of potential truck prospects are deterred from purchasing solely on account of the wastage that would be incurred by junking their horse-drawn equipment. Harry J. DeBear, directing the energies of the Maxwell in New York, has made a special drive at this class of prospects with considerable success.

Instead of discarding horse-drawn vehicles the front wheels are removed, a Martin rocking fifth wheel fitted and the trailers thus formed are used in connection with standard Maxwell worm-drive truck chasses. It is recommended that at least three such trailers be used in conjunction with each truck, so that the truck can be kept busy hauling one trailer while the others are being loaded or unloaded.

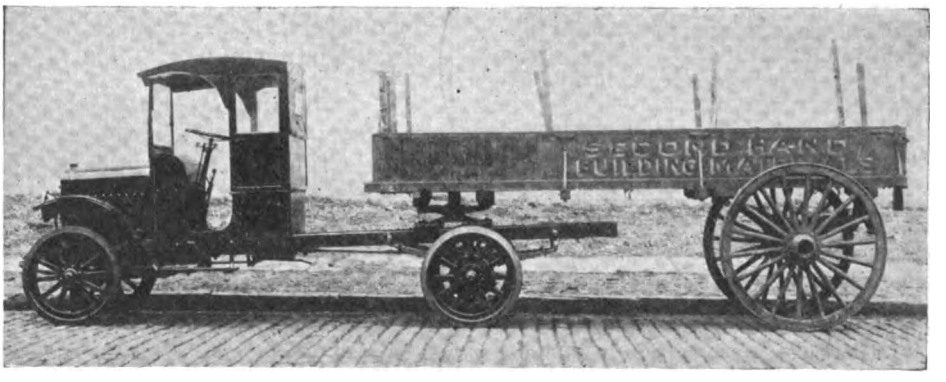
With horses selling at the high prices now prevalent, it is estimated that the profit alone on the sale of six or eight horses should pay for one truck and for the conversion of three wagons into trailers.

In converting the truck and wagons to this use no change is made in the truck chassis, the lower half of the fifth wheel being bolted or riveted to the frame over the axle.

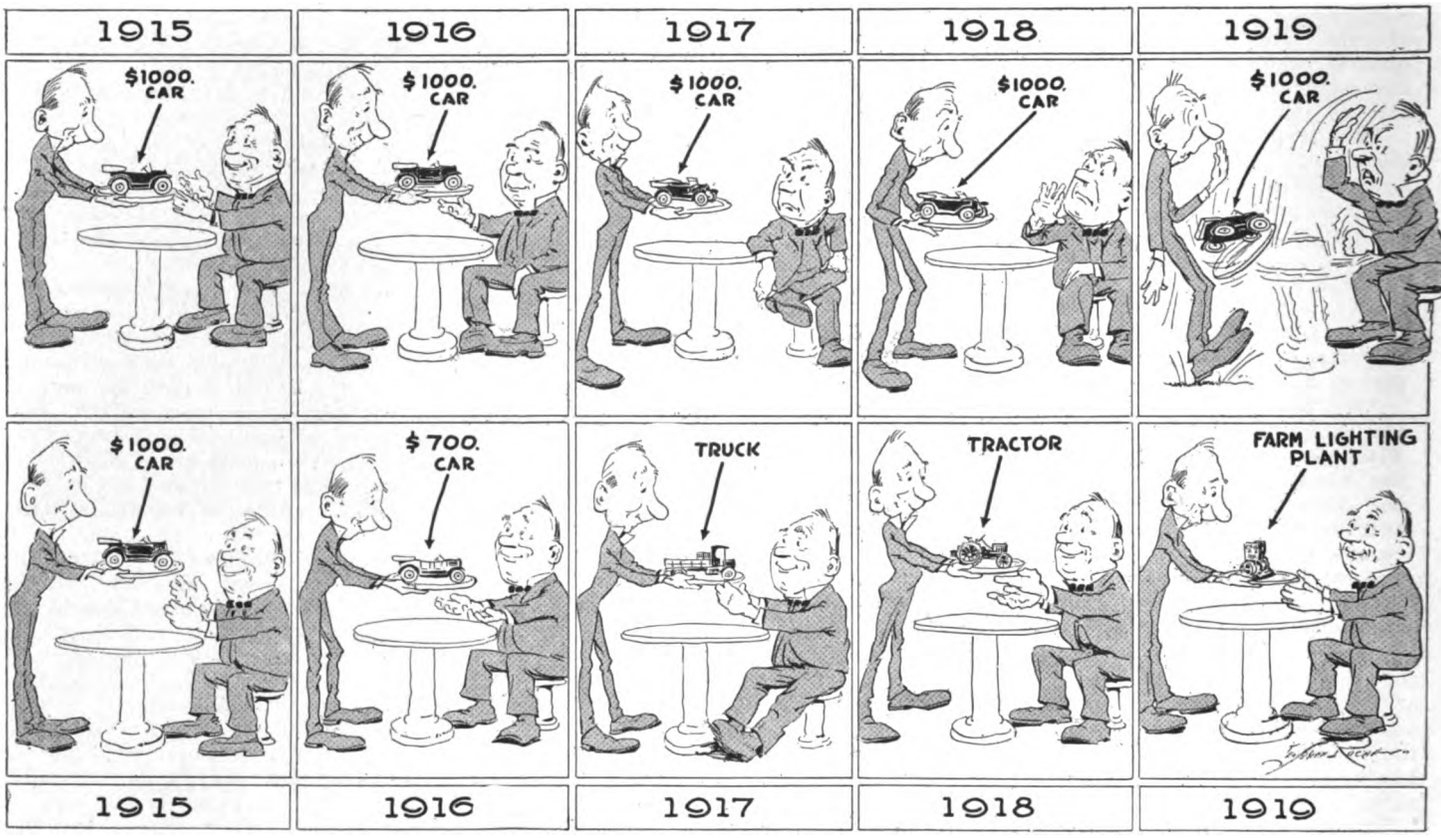
The operation of attaching the upper half of the fifth wheel to the wagons would differ slightly in different makes, perhaps entailing the use of extra braces or additional pieces of wood for strength or to fill out.

The entire cost of fitting up a wagon in this way has been found to average $70 per wagon, the cost of the work on the truck being almost negligible. This would make the cost of the Maxwell truck chassis and three trailers $1,405.31 in New York, including freight and war tax.

The fifth wheel on this job is 24 in. in diameter. No trouble has been experienced with the wagon bearings up to 20 m.p.h. fully loaded.



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Whetting the Public's Appetite

Do Sales Run in Cycles?

The Dealer and the Automotive Idea

DOES a buying public, especially in smaller towns, ever become surfeited with one make of car?

Does the dealer in one particular make of car ever find his sales falling off during succeeding years because he seems to have sold to the public about all of his particular make of car that his town or section will absorb?

That such is the case is the theory advanced by Milton W. Koenig, advertising manager of the Weber Automobile & Implement Co., one of the largest automotive institutions in St. Louis.

That is held by Koenig to be one of the strongest reasons why the dealer of to-day must become automotive. He must sell more than one particular make of car, and it is highly to his advantage if he sells something besides motor cars themselves.

"I have noticed," said Koenig, "that passenger car sales run in cycles. A dealer will have an excellent year on, let us say, Hupmobiles, and it might be expected that the next year he would do even better, but it often develops that the next year his limited buying community has been saturated with Hupmobiles and he finds sales harder than ever.

"In that case we turn him to the Maxwell car, which we also handle, and he comes through the year with a good business in that particular vehicle. It is in a different price class from the Hupmobile and he has a good season.

"Perhaps by intensive selling he may stock up the community on Maxwell cars. His Hupmobile sales may come back to a certain extent, but in order to give him a third prosperous year we turn him to truck sales. We show him how to concentrate on this line of effort and the result is that he has a third successful year.

"The tractor trade is just beginning and we are urging our dealers to get into it and cash in on its possibilities. If they do that and in addition keep their other branches of business going there is no reason why they cannot have a good year every year, whereas if a dealer handles only cars or especially one make of car, he might have some pretty lean years.

"I believe that many of the changes in selling representatives of passenger cars are due to the fact that communities get saturated with that particular make. In a small community not every man wants a car like his neighbor. Then, again, no community can be suited with one price

Weber's Automotive Line

CARS

National	$2150
Hupmobile	1250
Maxwell	745

TRUCKS

Maxwell	$825-$1085
Armleder	2750- 3600

TRACTORS

Minneapolis	
Keck-Donnerman	

Lighting Systems

Alamo

Portable Gas Engines

Sandwich

Cars and Accessories, Steam Engines, Threshing Outfits, Power Feed Cutters and other farm machinery.

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of cars. To meet the demands of his natural customers a dealer must have several prices to offer and also several sizes of car.

"We keep before our dealers always the fact that our showrooms and shops are available to them and, if they do not want to carry a certain kind of truck or tractor in stock to meet a demand that might temporarily be limited, they can bring their customers to us and we assist them in making sales. Many of them do this. Of course, that impresses the dealer as a good deal of a pick up and it pleases him, too.

"We handle the National at $2150, the Hupmobile at $1250, the Maxwell at $745, the Maxwell truck at $825 to $1085, the Armleder truck at $2750 to $3600, the Minneapolis and Keck-Donnerman tractors, the Alamo lighting system, the Sandwich portable gas engine, and tires and accessories. In addition we have steam engines, threshing outfits, power feed cutters and other farm or city utility tools that are run by means of power.

"If it came to a question of shortening or lengthening the line that we handle I would lengthen it. A varied line such as we have is a great thing to reduce overhead and to maintain the shop.

"We always are having a busy season. There are no dull times, for, in addition to the lines that we sell new, we trade in many used cars, and we have our shop to put these into excellent condition when other goods are moving slowly. We keep a supply of used cars waiting for the shop men all the time.

"Cars and accessories are a new line for us. We took them up only a few months ago. We have not pushed them hard because we have not yet assembled a line that is suitable for cataloging. We are rapidly reaching that stage and we expect that part of the business to develop rapidly. We have a very good trade already among dealers who have profited by rather limited circulars and who have familiarized themselves with the line we sell when in the store.

"We find our dealers are ready and anxious, especially those in towns too small to have accessory stores to handle accessories in connection with the parts for the cars they sell.

"I do not see any future for the dealer who confines himself to one line except those who sell the very cheapest cars where the service department will supply an upkeep for the overhead.

"One difficulty we have encountered is to get men on the road to sell our varied line. It is hard to get them to push two kinds of passenger cars. It is still more difficult to get a passenger car man to speak a word for a truck and still more difficult to get him interested in the tractors. As to the machinery, they do not mix at all, but this can and will be overcome as necessities of the trade assert themselves. There is no question but what business is going to be done this way and some way assuredly will be found for the handling of it."

Lengthening a Chassis 24 In. with Two Welds

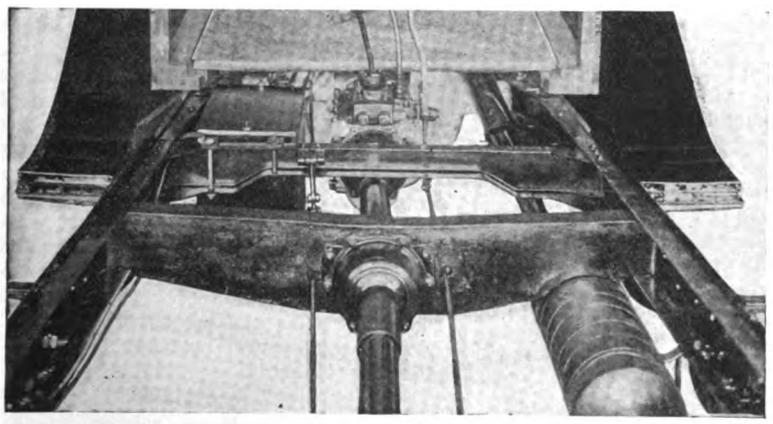
COLT-STRATTON CO., New York dealer in Dodge Brothers cars, has devised the following method of extending a chassis with the use of a single weld in each side member:

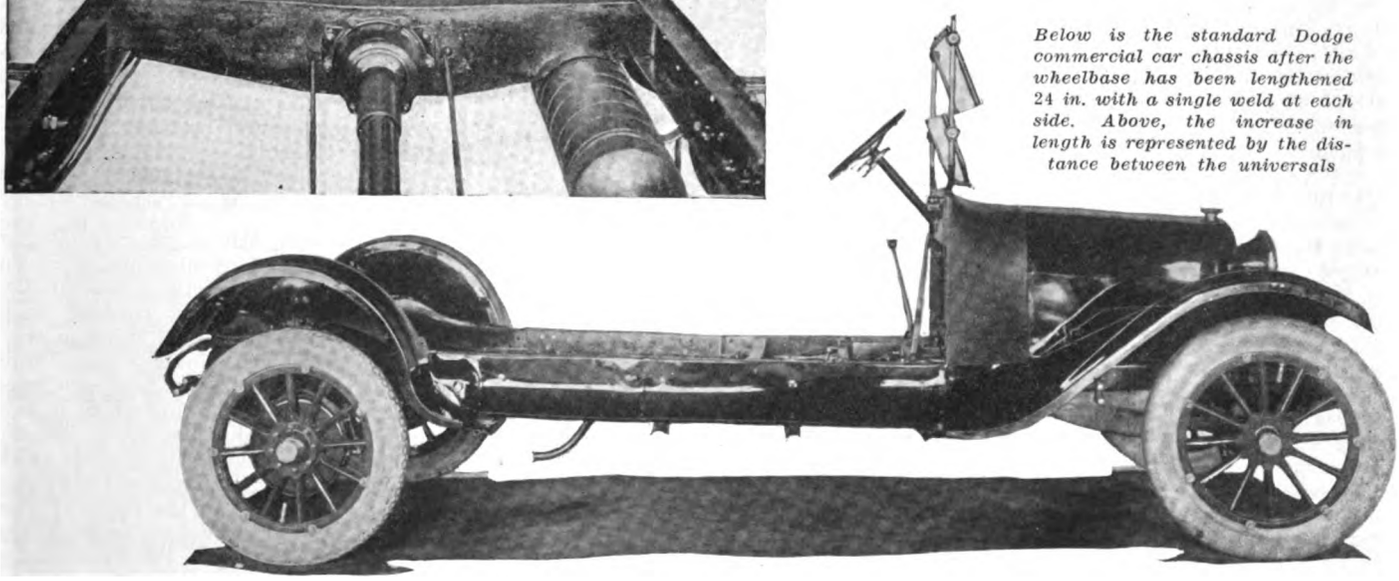
First the chassis frame is cut as far to the rear as possible. The front section of the cut chassis is then fitted to the rear section of a second chassis which has been cut as far front as is necessary to give the length of wheelbase required in the extended chassis.

Of the two remaining sections of the two chassis which have thus been cut, the front section with the short side members is used in making a 1½-ton truck or a 3-ton tractor by combining it with a Torbensen internal gear drive rear axle attachment, for both of which types of heavy hauling device this company has built up a good business, as described recently in this magazine. The rear section of chassis No. 1 is salvaged by disassembling its parts and returning them to stock. The result is a saving in cost of about $25 on each extended chassis turned out, and a more substantial job because of the single weld.

In the extension of the driving mechanism, the parts used include a section of drive shaft and housing cut the necessary length, a standard universal joint, a rear transmission bearing, a supporting cross member of 6 x 2 x ¼ channel iron made with a 5 in. return on each side of the channel frame, hot riveted; also two brake rod extensions of the necessary length, welded in.

The acetylene welded section of the frame is reinforced by steel plates 3⅝ in. wide by ⅝ in. thick, cut 12 in. longer than each side of the joint and hot riveted. The entire job is done in the Colt-Stratton blacksmith shop.





Below is the standard Dodge commercial car chassis after the wheelbase has been lengthened 24 in. with a single weld at each side. Above, the increase in length is represented by the distance between the universals

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The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer.

THE LAW

By George F. Kaiser

As It Applies to
Dealers
Repairmen
Garagemen

Be Reasonable

THE sale of a business with an agreement that the seller is not to re-engage in the same line for a certain time within a certain specified distance is not uncommon.

Recently an interesting case like the above was submitted to me for an opinion. A garageman who operated in a small town sold out his business. He was well known and well liked in the town where he was located. The buyer, not wanting him to open up a new garage in opposition, insisted that he sign an agreement that he would not re-engage in the same business in the entire state for ninety-nine years.

About a year after the former dealer sold out his business, he opened up a new garage and repairshop in his old town about a block away from his old place of business, and commenced to solicit business from his old customers. The man who had bought the business from him very naturally objected but did not succeed in getting any satisfaction. He then determined to get some legal advice as to what he had the right to do. I advised him that I thought that the courts would decide that the restrictions he had made as regards the other man's re-engaging in business were invalid because they were unreasonable and that he would therefore be unable to recover any damages for breach of contract.

Be Careful of Agreements

In a case of this kind where a person buys a business and wishes to protect himself against the possible future competition of the seller he must be very careful that any agreement made restricting the seller's right to re-engage in business is reasonable. If the buyer in the case I mentioned above had provided that the seller should not re-engage in the same line of business within five blocks for ten years or within ten blocks for five years, the restriction undoubtedly would have been valid because the business was a local one, but where a man who conducts a purely local business is restrained from re-engaging in the business, in which he is most proficient, for the rest of his life, in any part of a whole state, the restriction is undoubtedly unreasonable and invalid.

The validity of such an agreement depends in every case upon the reasonableness of the provisions as to time and distance. For that reason agreements not to re-engage in business where no time limit or distance limit is specified have always been held to be invalid, because, as the court said, such agreements not only deprive the contracting party of the right to re-engage in such business or trade but also deprive the public of his skill and ability in that particular line of business.

Of course, where a concern doing a business in a large number of states sells out, the restriction can be much more severe as regards time and distance than when the business is merely a local one. In one case where a concern which did business in a number of states agreed not to re-engage in business in any state or territory except Nevada or Montana for ninety-nine years the agreement was held valid because it was reasonable in view of the fact that the concern did business in a large number of states.

Dealer Contract Valid

In a recent case which was brought by a dealer against a motor car manufacturer on a "dealer's contract" the court, in deciding that the dealer was entitled to damages for breach of contract, said: "In disposing of this case we will proceed upon the assumption that when business men negotiate with each other and reduce the result of their negotiations to writing and speak of that which they execute as an agreement between themselves" that the purpose was to accomplish something. Although it was contended that the contract was void and invalid the court decided that it was good because it was the intention of the company to sell cars and of the dealer to buy them, pay for them and resell them.

Must Read Contract

Another rule of law that is not generally understood or if understood is not always followed by dealers is that a person is obliged to read a contract if he is able to read or have it explained to him if he cannot read, or else he cannot deny liability under it unless there is fraud, misrepresentation or deceit on the part of the other party.

By way of illustration: If a man comes into a dealer's place of business and wishes to sell certain goods, and the dealer agrees to buy them and signs his name without carefully reading the contract, he is bound by the contract provisions, and if a clause such as "All the conditions of this contract are mentioned herein" is contained in the printed form presented by the salesman, any verbal agreements that the dealer may have made with the salesman are invalid and the courts will hold that the written contract contains all the terms agreed upon.

The courts have time and again decided that when a person who can read and write executes a contract he is bound by it when there is no fraud, misrepresentation or deceit, and the fact that he did not read it or was ignorant of its contents is no defense, for he should have read it.

The courts have further held that a man who cannot read or write is under a duty to have the contract explained to him in order that he may understand its contents, and if he fails to do that he is bound by it and must take the consequences.

Olympian Motors in Production

PONTIAC, MICH., May 20—Olympian Motors Co. shipped its first car April 29. Production is now ten cars a day, and this is expected to grow to fifteen daily within a week.

Changes in Timken Personnel

DETROIT, May 20—Several changes have taken place in the organization of the Timken-Detroit Axle Co., due to the resignation of Eugene W. Lewis, former vice-president and director of the company, who has accepted a position with the Government. A. R. Demory, vice-president, will become vice-president and general manager. Frederick C. Gilbert, secretary, will become vice-president in charge of sales and advertising. C. W. Dickerson, treasurer, will have the added office of secretary.

More Fordsons Ordered

DEARBORN, MICH., May 20—Orders have been placed by distributers of the States of North Dakota and South Dakota for 500 Fordson tractors each. Minnesota will take 1000 Fordson tractors. The Fargo Motor Sales, Fargo, will handle sales in the first mentioned State; Herring Motor Co., which is handling the Nebraska and Iowa distribution, will also handle South Dakota sales; W. H. Schmeldel, St. Paul, will take care of the distribution in the State of Minnesota. Uruguay, South America, and Haiti have each taken 100 Fordsons.

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A Department of

BETTER MECHANICS

No. 68

Storing the Mechanic's Tools

A Place for Everything and Everything in Place

By S. T. Williams

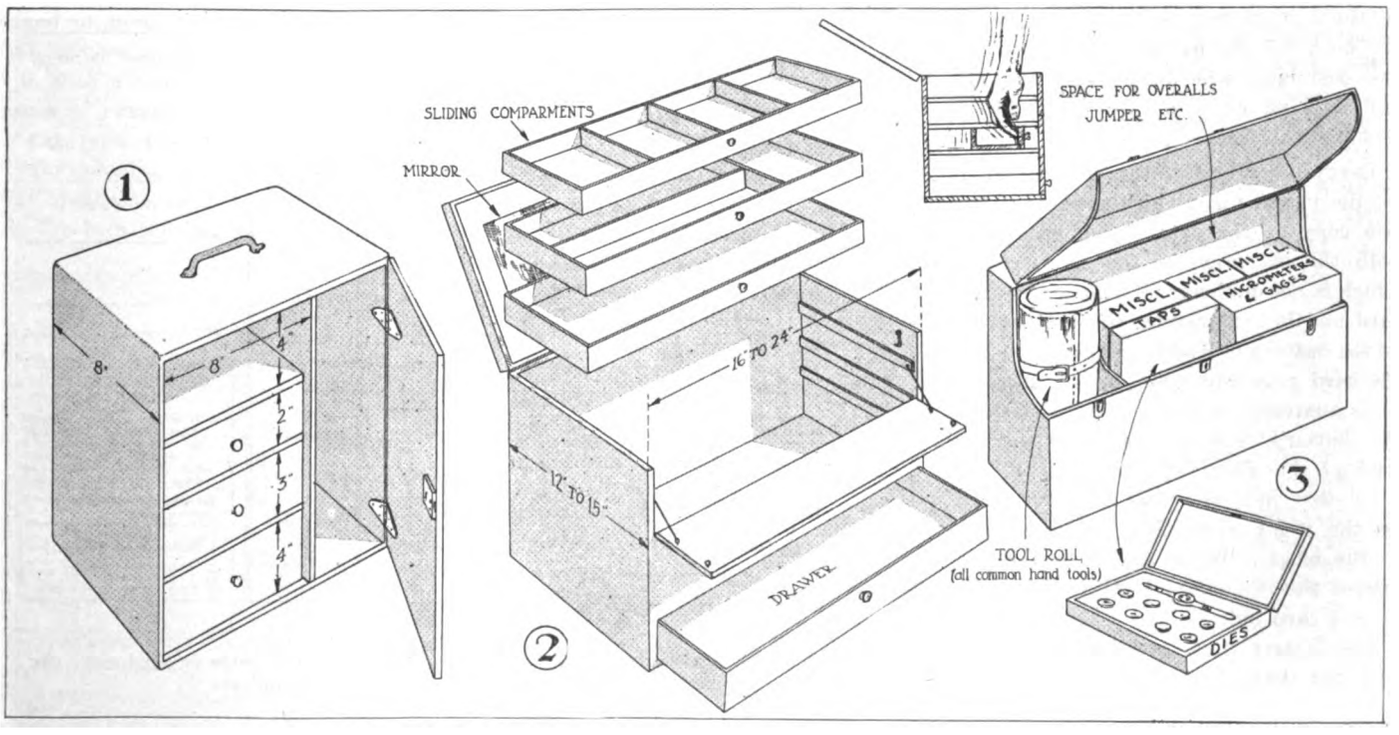
POSSESSION of tools does not signify the ability to use them; but the lack of necessary tools is characteristic of poor workmen. Every mechanic should own certain necessary tools, and their efficient use and preservation necessitate a tool box of some sort.

Tool boxes vary almost as much as the men that own them, but three types seem best: the small, portable box construction, Fig. 1; the bench type, Fig. 2; and the large, portable type shown in Fig. 3. The sizes are not fixed, but may be changed to meet requirements.

Chest No. 1 is entirely satisfactory for the average mechanic, and will carry the essential tools in an orderly manner where they are easily available. It is wood throughout, may be taken to the job, and can be constructed by the average man.

Chest No. 2 is most suitable for the skilled mechanic or shop foreman. It is of the bench type, and will carry all the necessary personal tools as well as the special tools required in particular repair work. The drawers slide to the front, permitting the desired tool to be easily obtained. Storage space at the front is available for overalls, etc., during the time the chest is locked.

The suitcase type chest, Fig. 3, is suitable for the roadman, as the common tools are carried in a roll, and the finer tools in special compartments. When closed it may be most readily carried.



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Keeping Track of the Battery

System Used to Identify Batteries, Record Labor and Parts Charges and Check Loaned Batteries

ANY garage or service station charging and repairing storage batteries must provide itself with a system of recording the work done, materials furnished and supply an identification check to the customer.

It is desirable that these operations be simplified to the highest possible degree so that there will not be too much red tape and writing to do when the battery is received from the customer, and it is also necessary that when the battery is ready for delivery there shall be a complete record with it of the work done, materials supplied and the prices to be charged.

The Bolton-Wechtel Co., Inc., Brooklyn, N. Y., uses such a simple, complete system. When a battery comes in for charging or repairs, an entry of the customer's name, address, type of battery and date is made on the form shown in. Fig. 1. These records are on thin white paper, made up in book form, three to a page.

Fig. 1 is perforated and the part to the right of the perforation is given to the customer as a claim check. The part to the left of the perforation stays in the book till the battery is delivered to the customer, who then signs the slip and it is placed in a card index file in alphabetical order.

Every other leaf of the book is heavy manila paper, upon which appears a carbon copy of the data shown on Fig. 1 with the exception of the claim check, which is not duplicated. This is the shop card and it accompanies the battery until the battery is ready for delivery, when the card goes into a box in the office.

As material or labor is furnished on the battery, entries are made on the back of this shop card as shown in Fig. 3, so that it is a simple matter to add up the items when the card gets back to the office. When the battery is delivered this shop card is filed numerically in a card index.

The battery itself is identified with a lead tag, bearing the same number as

No.....

BOLTON-WECHTEL CO., Inc.
1188 BEDFORD AVE

Rep. Tag No...... **BROOKLYN, N. Y.**.....

Received from M.....

Address .....

.....Battery, type.....Serial No.....for repairs and $..... as security ..... for Battery, type.....Serial No. .....loaned.

It is distinctly understood and agreed that in event the battery left for repairs is NOT called for within thirty days from date, it is to be retained by Bolton-Wechtel Company together with the security in lieu of and in payment for the battery loaned, and Bolton-Wechtel Company shall henceforth be the absolute owner of the battery left for repairs.

BOLTON-WECHTEL COMPANY

By.....

AGREED TO:

By.....

2M Sets U&F 4-17

Fig. 3—When a battery is loaned for one that is being repaired, the car owner is given a receipt on this form

NAME
ADDRESS

		SPEC. GRAV.
NEGATIVE ELEMENTS		
POSITIVE ELEMENTS		
SEPARATORS		
TOP COVERS		
INSIDE COVERS		
JARS		
CASE		
CONNECTORS		
SPECIAL TERMINALS		
REMARKS		

ORDER ENTERED TO REPAIR | SCRAPPED | NEW BATTERY ORDERED

REC'D BATTERY 491 SIGNATURE

MANUFACTURED BY AMERICAN SALES BOOK CO., LTD., ELMIRA, N. Y.

RECORD NO.
TYPE
BATTERY NO.
DATE LETTER
SHIPPED
DATE RECEIVED
DATE OF REPORT
HOURS OF LABOR
CHARGE FOR REP.

BATTERY CLAIM CHECK

NO.
TYPE
BATTERY NO.
DATE
NAME

POSITIVELY NO BATTERIES WITHOUT CHECK

Rental batteries c. per day. If Rental Battery should be retained longer than seven days an extra charge of c. per day will be made. Additional charge will be made for recharge if battery is left over 14 days.

Not responsible for Batteries left with us over 30 days.

Bolton-Wechtel Co., Inc.
1188 Bedford Ave.
SERVICE STATION

Fig. 1—When a battery comes in for charging or repairs, this form is filled out. The forms are bound in a book and made in duplicate

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How One Dealer Demonstrates Tractors









The Pence Automobile Co., Minneapolis, recently staged this demonstration of the Samson tractor. It created a lot of talk

the claim check, shop card and office card. The lead tag is affixed as soon as the battery is received.

In many cases a battery is loaned to a customer while his own battery is being charged or repaired. A loan slip with serial number shown in Fig. 3 is filled out in such a case, giving the name and address of customer, number of the repair tag, type of battery loaned and type left for repairs, with their respective serial numbers.

As the loan tag bears the serial number of the repair tag, and the repair tag bears the number of the loan tag, it is impossible to forget that in this case there has been a battery loaned. When the loaned battery returns, the loan tag is filed, being marked "returned" and the date.

When cash is paid for charging or repairs, an ordinary duplicating sales book is used, the original copy going to the customer as a receipt and the carbon copy serving as a check on the day's cash receipts. If the transaction is charged, a note is made of the fact on the office slip of the repair tag and the amount is posted to the journal or ledger.

This system is complete, as it furnishes the customer with a claim check, the office with a record of the transaction while the battery is in the shop and after it is delivered, and furnishes the shop with an instruction card and cost card. After the battery is out of the hands of the station, records are available both under customer's name and under serial numbers of the tags.

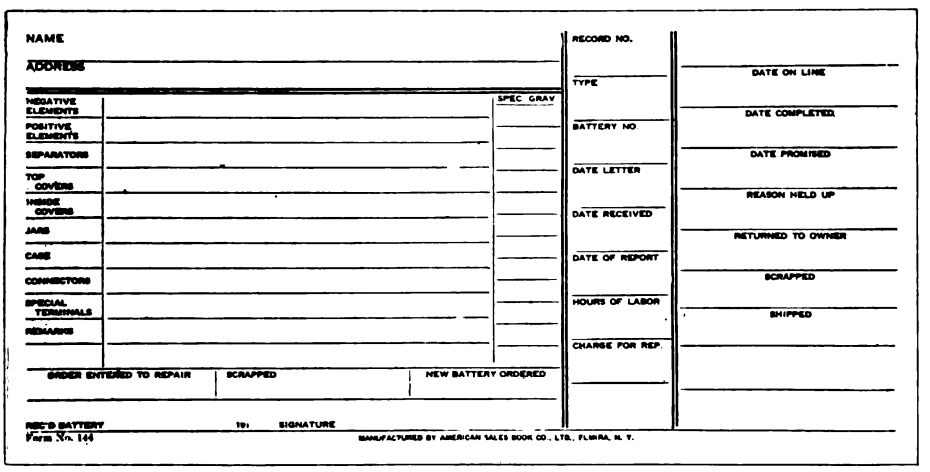

NAME
ADDRESS
NEGATIVE ELEMENTS
POSITIVE ELEMENTS
SEPARATORS
TOP COVERS
INSIDE COVERS
JARS
CASE
CONNECTORS
SPECIAL TERMINALS
REMARKS
SPEC. GRAV
ORDER ENTERED TO REPAIR
SCRAPPED
NEW BATTERY ORDERED
REC'D BATTERY
SIGNATURE
Form No. 144
MANUFACTURED BY AMERICAN SALES BOOK CO., LTD., ELMIRA, N. Y.
RECORD NO.
TYPE
BATTERY NO.
DATE LETTER
DATE RECEIVED
DATE OF REPORT
HOURS OF LABOR
CHARGE FOR REP.
DATE ON LINE
DATE COMPLETED
DATE PROMISED
REASON HELD UP
RETURNED TO OWNER
SCRAPPED
SHIPPED

Fig. 2—This is the duplicate which is made out when Fig. 1 is filled in. It is printed on heavy cardboard and serves as instructions to the repair department governing the work which is to be done on the battery. When the battery is returned to the owner he must sign this form, which is then filed in a card system and serves as a permanent record of the work done on that particular battery

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Repairshop Shortcuts

From Motor World Mechanics

No. 1673—SOLDERING ACID BOTTLE-HOLDER

A holder to prevent soldering acid bottles from being spilled is made by placing the bottles in a box and filling the box with cement. By moving the bottles in the cement before it sets the holes can be made large enough so that the bottles can be removed.—H. H. Ballander, Overton Garage, Overton, Neb.

No. 1674—REMOVING HEAVY TRUCK WHEELS

A heavy truck wheel may be removed by one man after the wheel is loosened up by jacking up the axle and placing a piece of thin steel or tin about 8 x 20 in. under the tire, greasing the plate, and sliding the wheel along the plate after lowering the jack slightly. The grease may be obtained from the wheel bearing. —George E. Wilhelm, B. F. Goodrich Rubber Co., New York City.

No. 1675—AUTOMATIC SIGNAL FOR AIR-COMPRESSING OUTFIT

A signal which will ring an electric bell when the pressure in the tank gets too low or too high is made by removing the glass from the air gage, placing a narrow section of inner tube around the gage case, placing two wires so that they make contact with the gage hand when it reaches 120 or 180 lb. and placing another section of tube over the wires to hold them in place and insulate them. An electric bell is wired up with a switch and dry cells, and one terminal is grounded by wrapping bare wire around the air pipe going to the gage.—C. H. McLean & Son, Newton, Iowa.

No. 1676—CAR SPRING RACK

A rack for car springs is made by drilling holes in the wall or in an easel and inserting old valves in the holes, cotters or nails being put in the pinholes to keep the valves from coming out.—H. R. Spangler, Alamogordo, N. M.

No. 1677—LAPPING CYLINDERS WITH PORTABLE DRILL

A portabe electric drill is used to lap in cylinders by using a piece of ⅜-in. iron rod 18 in. long, one having an eye formed to encircle the piston pin of the lapping piston, the other end being straight, to go in the chuck of the drill.—Max W. Broadie, Fowler, Ind.

No. 1678—VALVE-PIN INSERTER

A valve-pin inserter is made from a piece of ⅛-in. gas tubing 5 in. long, slightly bent at one end. The pin to be inserted is dropped into the bent end, and a plunger made of 1/16-in. wire forces the pin out of the tube into the hole in the valve stem.—R. E. Brown, Auto Inn Garage, Anderson, Ind.

No. 1679—UMBRELLA FOR GASOLINE PUMPS

An umbrella is made of sheet metal and mounted on top of a piece of iron pipe, the upper end of which is split. The split ends are turned over and the conical-shaped sheet metal piece riveted on. The lower end of the pipe is driven into the ground. The umbrella is about 30 in. in diameter and stands about 6½ ft. above ground.—Standard Oil Co. of New York, New York City.

No. 1680—ADJUSTABLE BUSHING PULLER

An adjustable bushing puller to fit different size bushings is made from machine steel. It is pivoted and has a cap screw for expanding the legs to the bore of the bushing. The top is threaded and a nut pulls against the U-frame to pull the bushing out.—Charles H. Willey, Concord, N. H.

No. 1681—BABBITT LADLE

A babbitt ladle is fitted with a hook bolt for lifting with a wire triangle. A hook riveted to the rim lifts the babbitt pot and a foot on the handle enables the ladle of melted babbitt to be set down without spilling.—Charles H. Willey, Concord, N. H.

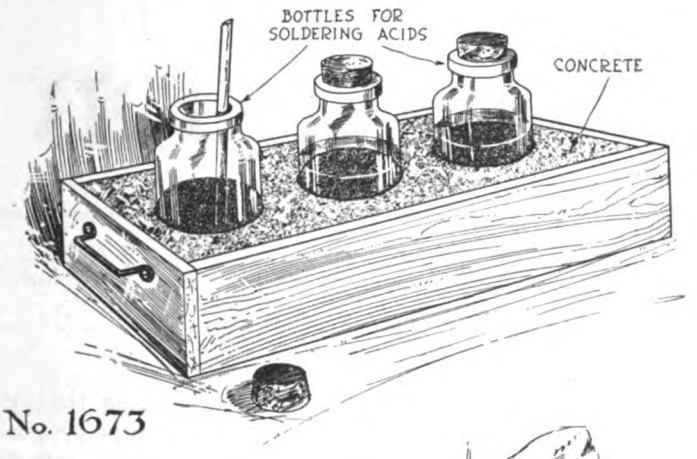
Pierce-Arrow Truck on Long Trip

BUFFALO, May 20—Traveling over the same route it followed 7 years ago a Pierce-Arrow truck, which since has been in daily service, will repeat the performance Tuesday, May 28, the anniversary of the trip, when it will run from New York to Boston. The event has been arranged by George M. Graham, chairman of the National Motor Truck Committee of the National Automobile Chamber of Commerce at Washington, who is assistant commercial manager of the Pierce-Arrow Motor Car Co.

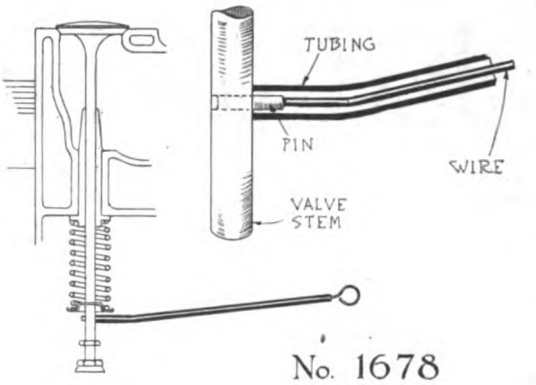
$1 a Helpful Kink

HOW often have you been compelled to rack your brain to overcome some difficulty? But when you did find a solution—what a satisfaction it was! Well, here's a chance for you to dig some of those life-savers out of their hiding places and put them to work for your fellow-craftsmen. Send them to Motor World. We will pay you a dollar for every one accepted for publication. The only requirements are these: 1—*Describe the short-cut briefly but clearly, in few words.* 2—*Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job.* 3—*Write on ONE side of the paper only.* 4—*Sign your name and initials, the name of the company you are with, and the town. Write plainly. If your name is unusual, print it in capital letters.*

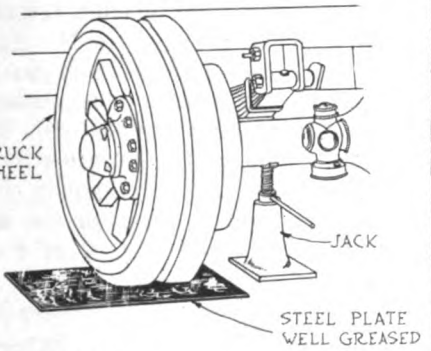
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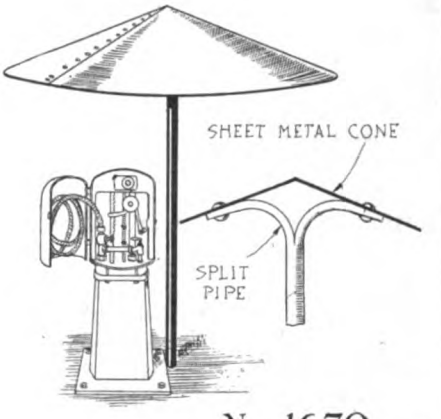
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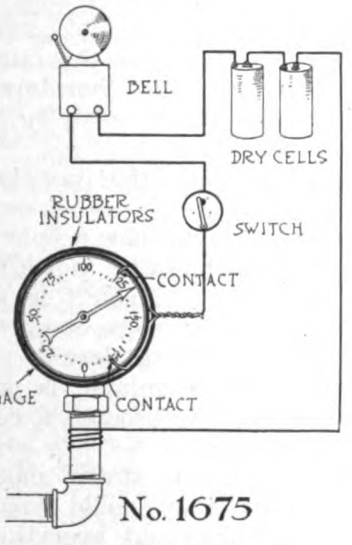
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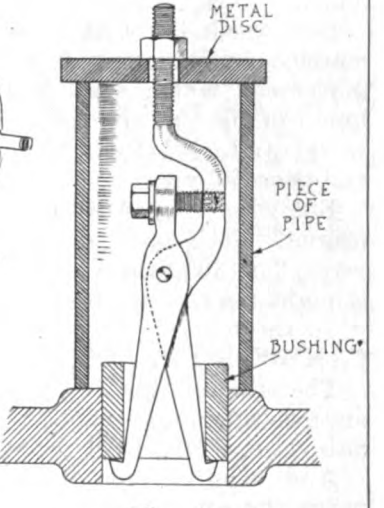
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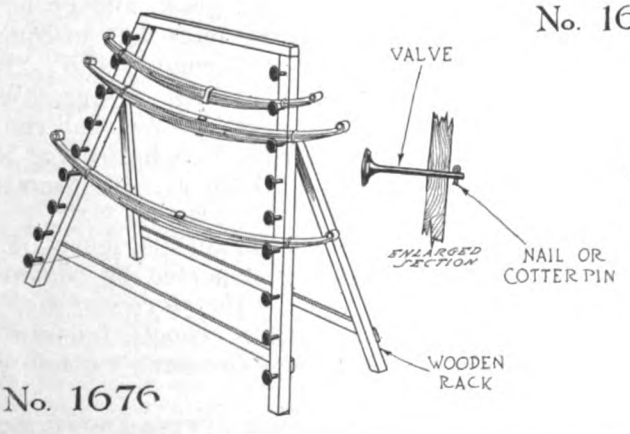
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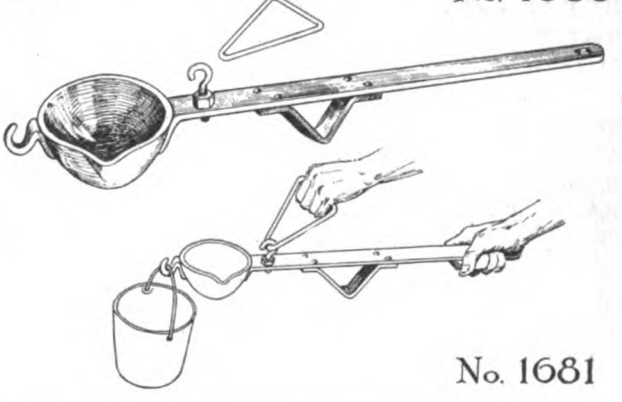
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Editorial Observation

Peace?

IN a short time there is expected a big German drive for peace. Germany is going to set the whole world talking about peace—all of which is intended to break down our war spirit. Germany has no more intention of making peace than she has of giving up the territory she has torn from the rest of the world.

It is a time of peril. A German bearing false suggestions of peace is more to be feared than a German bearing arms. At the present time he can do more harm with peace talk than he can with weapons.

Every man in America must school and steel himself NOT TO TALK ABOUT THIS "PEACE." It is NOT a peace. There never can be a peace until we win it by force of arms—and that time is two or three or more years away.

When Pershing's army crosses the Rhine there will be peace talk—not before.

Last week the League to Enforce Peace held a meeting in Philadelphia. Its aim is to perfect a movement which shall lead, *after the war,* to a union of nations that shall be a police force of the world and COMPEL all nations to live lawfully and peacefully.

But what do you think is the first object of this league? It is *not* peace—it is *the winning of the war.* The 3000 thinkers and leaders of the nation's thought realize that until we WIN this war and win it so there is no doubt as to who won it THERE CAN BE NO PEACE.

The aims of this league are: 1—Win the war in an overwhelming manner. 2—Form a league of nations to ENFORCE peace.

And what do you think is one of the greatest perils these thinkers see ahead? The coming German drive on the western front? No! Our numerous governmental investigations? No!

What then?

The German drive for "peace."

Therefore, beat down this "peace talk" the minute it shows itself. Don't let your friends, employees and business associates labor under false delusions. Tell them: *'To hell with peace! Get on with the war! Then we'll have real peace and not a German peace."*

Meantime, become a leader of thought. Spread the story of the *real* reason why we are at war. It's all right to preach hate of the Germans and all for which they stand, *but let's make sure we understand what Germany is fighting for.*

The facts are these: Germany believes that the "state" is the highest creation. It believes people—their lives, their activities, everything—are only for the benefit of the state. In other words, Germany as a nation is the one greatest thing in the world, and every German is of consequence only so long as he lives and works for the benefit of Germany.

The German people have been taught this from childhood. *Most of them believe it.* That is why you find Germans so persistently unscrupulous in working for Germany. They believe their one mission in life is to serve their nation—and talk of a German revolution is only an idle dream.

Furthermore, German college professors and leaders have taught—and firmly believe to-day—that while morals apply to men they do not apply to states. That is why Germany could ruin Belgium and torture women and children in order to compel submission by terror. Don't you see that this might serve the state in some degree and that therefore it was RIGHT, *because the state is not bound by the laws of morality or humanity.*

There are countless German books that say these very words.

And again, Germany has taught her people to worship—not God, not love, not morality, not kindness, not money—but "macht." "Macht" is the German word for "power." Power is the one great ideal in Prussianism. Weakness is intolerable. A weak man, a weak state, a weak animal, is only something to be put out of the way because it cannot serve to create greater power.

It is Germany's philosophy that states should get power and more power, that they should expand and grow, crush opposition, wipe out everything that stands in their way and grow, and grow, and grow—until there is nothing more left to conquer.

That is why we have the German motto: "Weltmacht oder Niedergang," which means "World power or ruin." In other words: "We shall conquer the world or go down to ruin." A half-peace is not for Germany—and it is NOT for us. OUR motto is: *"World peace* or ruin."

Please read this editorial again—seriously. Every single word in it can be supported by *volumes of books of German origin, by the stories of men who have spent years in German schools, by men who made a calm, cool study of Germany's ideals years before the war began.*

These German ideals were always known, but no

(*Continued on page* 48)

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Letters from Readers

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

Wiring a Test Board

Editor Motor World: Please find enclosed a rough sketch of test board which the writer desires to put up in our accessories department for the use of the clerks and am sending same to you to see if you could give me some information in regard to wiring of the same, and the writer would appreciate an early reply on this information, if it is possible for you to give it.—Barker, Rose & Clinton Co., I. L. Wilcox, Elmira, N. Y.

The test board shown in the accompanying illustration will perhaps suit your purpose if the mains in your neighborhood are alternating current. The transformer shown is one which will reduce the voltage from 110 to that usually required for automobile lamps and instruments.

In order to use the volt-ammeter, the change-over switch should be connected to the two terminals of the instrument so that when fuses are being tested the meter will read the number of amperes flowing through the fuse. Note that this change-over switch is only used for ampere readings across the fuse tester contacts; for all other readings the switch arm should remain on the V side of the switch. The safety gap shown across the contacts may be placed behind or in front of the board. Its purpose is to prevent a breakdown in the insulation of the high-tension winding in the coil if too high a voltage is generated.

Interference With Drive-aways

Editor Motor World: I am enclosing herewith copy of a letter which I have written to the chief of police of Binghamton, N. Y., and which I think covers the matter of police interference with drive-aways pretty thoroughly. I am also enclosing a clipping of the editorial referred to.—A. E. Maltby, President Philadelphia Automobile Trade Association, Philadelphia.

April 30, 1918.

Mr. C. P. Cronin,
Chief of Police,
Binghamton, N. Y.

Dear Sir: Word has come to me that you stopped a driver of one of our members, who came through Binghamton recently in a drive-away of cars from factory to distributor.

An association of this kind is very strong for the strict compliance of the law, both as to speed and in the matter of licenses, but under the stress of war conditions, and in an endeavor to help out the Government in the matter of transportation, we feel that the letter of the law could be overlooked in such cases as this particular one. We had some trouble in Pennsylvania at the start, but when the matter was called to the attention of the Highway Commissioner, he issued instructions to the police officials throughout the State to refrain from reporting such conditions as this.

I am enclosing an editorial which appeared in one of our morning papers to-day, which illustrates my point very clearly.

I believe various authorities throughout the boroughs, towns, cities and States should recognize the fact that the drive-away from factory to point of distribution is a patriotic move on the part of the automobile dealer and manufacturer and no hindrance should be put in the way of the drivers of such cars, everything else being considered. Willful infractions of the law, such as reckless driving or excessive speed, should be punished, and we would ask for no leniency in such cases. But in the matter of license tags and various other small infractions of the letter of the law, I believe judgment and common sense should prevail, rather than technicalities.

Trusting that you will take this letter in the spirit in which it is written, and that the automobile trade may have your cooperation as well as that of all other highway or police officials, I am, very truly yours, Philadelphia Automobile Trade Association.

Jeannette Went Over Big

Editor Motor World: Jeannette, Pa., has gone over the top in the Third Liberty Loan drive. At the beginning of the drive the Pennsylvania Rubber Co. offered to duplicate every bond which was sold in the factory and office, and the final subscriptions for the Pennsylvania Rubber Co. amounted to $85,000. In addition to this the company issued to Jeannette the challenge that if they raised $200,000 independent of this company's subscriptions we would double it. The latest reports show that the subscriptions amounted to $585,500 against a quota of $276,950.—Pennsylvania Rubber Co., L. P. Stephenson.

Mechanics, Attention!

Editor Motor World: The letter by C. Richard of Toledo, published in the May 1 issue of Motor World, made a bulls-eye.

When he says "There are no inducements for men to start in the repair business" he states an absolute fact.

There is a concrete basis for every fact; let us get down to the basis of this one:

Three years ago garagemen were charging 60 cents an hour for repair work. They paid A-1 mechanics an average of 40 cents an hour. Now the garages charge $1 an hour to the customer and pay the mechanic 50 cents an hour.

This is how it works out:

40 cts. is to 60 cts.
as
50 cts. is to $1.00
} Notice the discrepancy

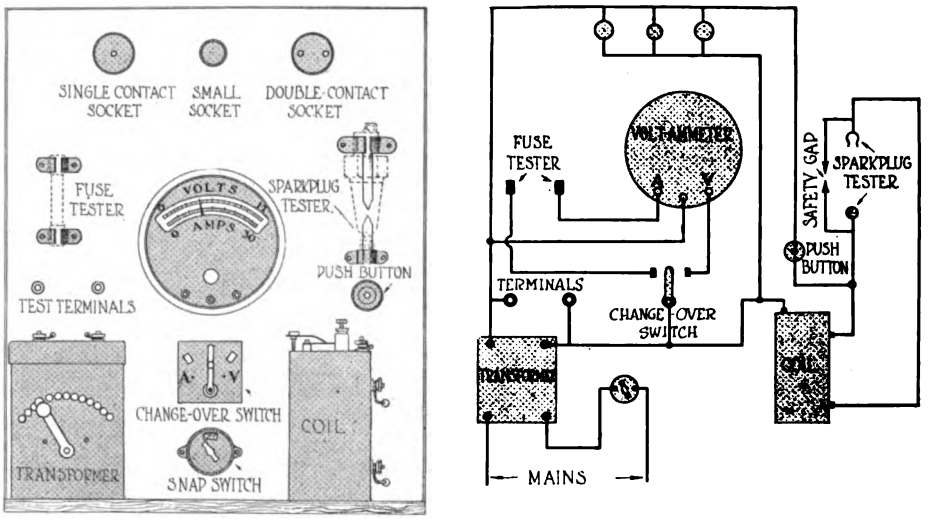
This, and *not the war*, is responsible for the shortage of mechanics.

At meetings of manufacturers and business men, the orators comment extensively on how necessary it is that the workers should be treated squarely—given a 50-50 deal. All nice talk but it buys no war bread, no war bonds or stamps.

Now! If they will talk less and act more; give the workers a 50-50 deal, there will be no trouble in disposing of all the Liberty bonds and thrift stamps the government has to sell.

If the repairman got a 50-50 deal he would get from 60 to 70 cents an hour instead of 50.

Three years ago a mechanic could save



Wiring for a board to test fuses, lamps, plugs, etc.

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money on 40 cents an hour and live well. I know because I did it. But now! With the cost of living up from 50 to 150 per cent and wages up only 25 to 40 per cent how can the repairman live decently, feed and clothe his family and buy Liberty bonds?

It is time we had less talk and more action.

Norval A. Hawkins, in the May 1 issue, page 8, covers it thoroughly in the last paragraph. Must not kill business. Let every reader of Motor World take up the May 1 issue and read Mr. Hawkins' article—read it carefully, seriously and then take it to heart. It is the finest article I have seen along this line. It dispels pessimism and gloom for it breathes optimism in every line. And we surely need optimism now if we ever did. Yours for bigger and better business, C. R. Pierson, Foreman Hart Motor Co. (Ford Agency), Salineville, O.

New England Business

Editor Motor World: From our experience we can say that business in New Haven is pretty good.

At the present time we are running ahead of the business that we did up to this time last year and it looks as though, if we can keep on getting cars we will keep right along at the present clip or better.

Of course, you know New Haven is a munitions town and things are booming here a little more than they are outside of the munitions belt. From our experience in some of the smaller towns outside of New Haven, like Middletown and Meriden where there is very little or practically no munitions business, things are not nearly so good, so I can readily see where you might get a report that business in New England is not quite as good as had been expected.

We are keeping several men busy making trips from the Buick factory, driving cars over the road and at the present time Buick is doing fairly well on taking care of us in letting us have what we need.

On White and Peerless we get our cars from New York, some being driven and some coming by express.—The White Motors Co., W. A. Rutz, General Manager, New Haven.

P.S.—Most of the other local dealers report business to be pretty good with them.—W. A. R.

Chamber Recommends Policies

Editor Motor World: We notice a letter in your April 3rd issue headed "Going on Cash" which indicates that the Editorial Department of Motor World apparently does not know that the National Automobile Chamber of Commerce has approved standard forms of service and repair parts policies as well as getting out the gasoline poster. For your information we are enclosing copies of these standard forms. A number of the leading automobile manufacturers have already adopted them.—National Automobile Chamber of Commerce, per H. W. Perry.

STANDARD REPAIR PARTS POLICY of the BLANK MOTOR CAR COMPANY

(Prepared by the N. A. C. C.)

The purpose of this policy is to place the relations between the Blank Motor Car Company and its dealers on a definite, fair, uniform and businesslike basis

(1) **STOCK OF PARTS.**—The dealer will be required to maintain a minimum stock of both "current" and "service" parts as specified by manufacturers, to be paid for by the dealer on or before the 20th day of month following delivery.

(2) **CENSORING OF ORDERS.**—To prevent the over-stocking of inactive parts by the dealer or the purchasing of an excessive stock of any parts, the right is reserved by the manufacturer to reduce in quantity the number of pieces of any part or parts ordered by the dealer.

(3) **INVENTORIES.**—The dealer will be required to furnish an inventory of current and service parts upon request. The manufacturer reserves the right to send an auditor to verify inventories and reduce or increase stock as he sees fit in accordance with Clause No. 1.

(4) **SHIPMENTS TO DEALERS' TERRITORY.**—So far as possible, the dealer will be required to see that all orders for parts from his territory are placed through him.

(5) **DISCOUNTS.**—Discounts to garages or repair shops will be at the discretion of the manufacturer.

(6) **DESIGNATION OF PARTS STOCKS.—Stocks of parts shall be designated as follows:**

(a) **Current Parts.**—All parts used in cars of models being produced by the factory.

(b) **Service Parts.**—All parts for models no longer being produced by the factory and which have not been superseded by other parts that are interchangeable with them.

(c) **Obsolete Parts.**—Parts that have been superseded by other parts that are interchangeable with them.

(7) **RETURN OF PARTS.—**

(a) **Defective.**—Parts claimed defective under the 90-day warranty must be returned to the factory, with shipping charges prepaid, within 30 days from time defect claimed manifests itself.

(b) **Obsolete** parts shall be returned only as ordered by manufacturer.

(c) **Surplus** parts may be returned only by individual arrangement with the manufacturer.

All parts shipped to the manufacturer by dealer shall have transportation charges prepaid, and be properly tagged.

In case of parts claimed defective (a), the date when defect was discovered, number of the car, and owner's name and address, must be given.

(8) **NOTIFICATION OF OWNER.**—The manufacturer reserves the right to communicate direct with owners concerning replacement and disposition of parts returned.

(9) **DISPOSITION OF RETURNED PARTS.**—The manufacturer reserves the right to dispose, within 30 days, of parts returned, without assuming liability unless covered by shipping instructions or adjustment is accepted.

(10) **PARTS PURCHASED OR MADE OUTSIDE OF TERRITORY.**—The manufacturer will refuse to consider claims for or accept for adjustment any parts not supplied by him.

(Signed) THE BLANK MOTOR CAR COMPANY,

Address.....

STANDARD SERVICE POLICY of the BLANK MOTOR CAR COMPANY

(Prepared by the N. A. C. C.)

The Blank Motor Car Company, through its dealers, aims to give all purchasers of Blank cars uniformly fair, courteous and businesslike treatment and to assist them in every reasonable way to keep their cars in good running condition.

The principles of this policy are:

First—To fulfill the obligations assumed under the manufacturer's warranty.

Second—To furnish repair parts as promptly as possible at our current prices.

Third—To maintain facilities for making repairs, adjustments, and do general overhauling in a prompt and competent manner at reasonable charges.

Fourth—To make inspections and adjustments, not necessitated by neglect or abuse, free of charge for one month following delivery of a new car to purchaser, and thereafter at our regular prices.

Fifth—To furnish printed instructions in the operation and care of our cars.

Sixth—Service to be rendered does not include furnishing repair parts or labor without charge, except as provided in the warranty and in the following specific clauses of this Service policy:

(a) Within ninety (90) days after delivery of a new car to purchaser the Blank Company will furnish free of charge at the factory, duplicate parts to replace any parts as covered by our warranty that are returned to the factory with shipping charges prepaid and which are determined by the company to have been defective in material or workmanship, or it will put such parts in condition as good as new without charge.

(b) Within ninety (90) days after delivery of a new car to the purchaser the dealer will install, free of labor charges, any parts that the factory furnishes free of cost to replace any parts determined by the factory to be defective, the purchaser to assume cost of parts and installation of same pending factory decision.

(c) The party returning the parts will be notified promptly of the decision of the factory regarding allowance of a claim for replacement or repair of parts returned.

(d) Cars brought to service stations maintained by factory, branch or dealer will be inspected and all necessary adjustments will be made as in paragraphs (e) and (f), without charge during the first month after delivery of a new car to purchaser, provided the car has not been tampered with nor injured by accident or neglect. After the first month adjustments will be made at the regular charges of the service station.

(e) Inspection includes examination and report of the condition of the car.

(f) Adjustment includes only such adjustments as inspection has found necessary to put the car in good operating condition.

(g) Every dealer is expected to give the same inspection and adjustment service on the cars made by this company without regard to the territory in which they were bought.

(h) All work not included in inspection and necessary adjustment during the first month, or installation of replacements under the warranty, will be charged for at regular rates.

(i) When any charge work is to be done and the cost can be estimated in advance, the owner, upon request, will be advised of the amount of the charges before the work is begun.

(j) When it is necessary, for the convenience of the owner, to render service at a distance from the service station, the time spent by employees going to and from the job will be charged for at the regular rates of the station, together with all proper expenses of making the trip, cost of shipping parts, if any, and other necessary incidental expense.

(k) Any overtime, holiday or Sunday work done upon the request of the owner will be charged for at the regular overtime rate.

(l) Instructions in printed form regarding the care and operation of the car and its accessories, and proper method of ordering and returning parts, will be given to the purchaser upon the delivery of the car.

(m) Personal instruction will be given in accordance with the agreement between dealer and customer at the time of purchase.

(n) For service and replacements on engine starters, batteries, magnetos, generators, lamps, carbureters, tires, rims and other trade accessories that are not made by the manufacturer of the car, application may be made direct to the nearest service station maintained by the maker of such accessory. Dealers will be provided with a list giving names and addresses of the manufacturers of said accessories.

(o) No promise of service, free repair work, inspection or adjustment, except as herein specified, given or made by the dealer, shall be binding on the manufacturer of the car.

(p) To help the dealer carry out the intent of this Service Policy, the owner is requested to furnish all information necessary to the prompt and proper filling of orders and issuing of credits and to observe the requirements regarding return of parts with claims for replacement.

(Signed)

THE BLANK MOTOR CAR COMPANY.

(Address) .....

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The RETAIL NEWS

PACIFIC COAST

B. D. McAlvay and **A. H. Sitton** have opened Overland and Willys-Knight salesrooms at 122 South Los Angeles Street, Anaheim, Cal.

A. B. Gilbert, Buick dealer at Anaheim, Cal., has remodeled his salesrooms in the Central Garage.

Dalton & Price have purchased the Magnolia Garage, Arlington, Cal.

Brauer & Parker have bought the garage at 414 Main Street, Corona, Cal.

Walter Yance has established a Willard Storage Battery Service Station at Corona, Cal.

C. O'Hara has bought the Ontario Vulcanizing Works, Ontario, Cal., from R. E. Price.

The Drew Carriage Co., Ontario, Cal., is erecting a brick building to be used as a machine and repairshop devoted to tractor service. The company will handle the Kleiber truck and I. H. C. tractor.

Loney Brothers, Pomona, Cal., have added a recharging department and will represent the Willard battery company.

G. Earl Clark and **Lloyd R. Clark** will handle Maxwell and Oldsmobile cars in the Clark Brothers Garage at 125 South Main Street.

S. N. & S. L. Tathercole have purchased the plant of the Shelton Electrical Co., Pomona, Cal., and have added a Prest-O-Lite service station.

The Home Oil Co., Redlands, Cal., has opened a branch at Ontario, Cal.

The Redlands Vulcanizing Co. Redlands, Cal., has leased a store adjoining its present quarters, and has added a line of accessories.

Charles H. Stone has opened a tire, accessory and vulcanizing store at 13 East State Street, Redlands, Cal., under the style Racine Tire Service Co.

William W. Tara, Overland dealer, has bought the Casa Loma Garage, Redlands, Cal.

The Harry C. Apgar Co., Ford dealer in Redlands, Cal., has moved to a new building at Fourth Street and Citrus Avenue.

Chauncey H. Clem, Cadillac, Paige and Chevrolet dealer in Redlands, Cal., has bought the garage building at 117 West Citrus Avenue.

C. V. Wyckoff has purchased the Hayes Vulcanizing Works, Redlands, Cal., and will conduct it under the style Wyckoff's Auto Tire Shop.

P. L. Richardson, Redlands, Cal., has moved the Willard Battery Service Station to a new building at Citrus Avenue and Fourth Street.

P. B. Hurley has opened a repairshop at 452 West Eighth Street, Riverside, Cal., and is conducting it under the style Hurley's Auto Hospital.

Ned Lord, of the Lord Motor Co., Riverside, Cal., has moved to Kemp's Garage.

Stutt Brothers, Dodge dealers, have leased a new building on West Eighth Street, Riverside, Cal., as a branch.

L. G. Valiant, Riverside, Cal., has opened a wholesale and retail supply and accessory store at 624 West Eighth Street, under the style Auto Equipment & Supply Co. He will distribute Miller carbureters and cycle Portage tires.

The Glenn A. Calkins Co., Riverside, Cal., has been consolidated with the Vern C. Littleton Co., and will handle Ford, Chandler and Buick cars.

Rieckhoff's Garage, 450 Main Street, Riverside, Cal., has been enlarged, and salesrooms for the Jackson car and Autocar truck have been added.

The Riverside Motor Supply Co., Riverside, Cal., has leased the adjoining store and installed a complete vulcanizing plant.

Forsythe Brothers, Riverside Cal., have opened a branch accessory store and Firestone solid tire service station at San Bernardino.

J. C. Draper, San Bernardino, has purchased the Highway Garage at Rialto, Cal.

Brown & Ettelson have purchased the garage and Studebaker agency of the San Bernardino Motor Car Co., San Bernardino.

C. J. Illingsworth has become sole owner of the Grange Tire Co., Santa Ana, Cal.

Grant Lambert, Santa Ana, has purchased an interest in the Chevrolet agency from See A. Davis. The new company is styled Santa Ana Motor Co., and will soon have quarters in the garage building at Fifth Street and Broadway.

J. E. Monroe has leased the repairshop in Creighton's Garage, Upland, Cal.

The Rosenstein Garage, Chehalis, Wash., has taken the agency for Goodrich truck tires in Pacific and Cowlitz counties. A 200-ton hydraulic press will be installed.

The Mount Vernon Auto Co., Mount Vernon, Wash., has moved into its new garage and salesroom on Gates and Second Streets.

F. T. Crowe & Co., Seattle, have taken the distribution of the King trailer for King county, Wash.

Child, Day & Churchill, Spokane, accessory dealers, have doubled their floorspace to house their magneto and battery department.

The Motor Truck & Tractor Co., Spokane, has moved to a new location at 1017 Sprague Avenue.

J. G. Strawn, Spokane, has purchased the interest of T. L. Fisher in the Toppenish Motor Co., Toppenish, Wash.

H. Dadisman, Tacoma, has opened a repairshop at 8223 Pacific Avenue.

Henry S. Johnson, Tacoma, has opened an agency at 903 Tacoma Avenue for the Universal Tire Filler.

The Buick Sales Co., Wenatchee, Wash., will construct an addition to its present quarters. The building will be ready for occupancy in June.

New Garages

C. Brichtmacher.....Portland
Fashion Garage.....Portland
R. F. Patterson.....Portland
Auburn Garage (addition)...Auburn, Wash.
Stebick Motor Co.....Bremerton, Wash.
H. B. Quick Motor Co.....Chehalis, Wash.

SOUTHWEST

J. S. Younkin Motor Co., Arkansas City, Kansas, has bought the automobile business of Harry Colvin.

John Taylor, Concordia, Kan., has bought the Last Tire Shop.

Lemon Viar, Council Grove, Kan., has sold his vulcanizing plant to George Hobbs.

Harthone & Barrick, El Dorado, Kan., have established a repairshop.

Clifford Jerome, Goff, Kan., has bought back his garage from Thoren & Pinick.

Wm. Hoover, Hamilton, Kan., has bought the garage of E. L. Cook.

John Mann, Hiawatha, Kan., has bought the tire repair business of Frank Case.

C. A. Taylor, Hoisington, Kan., has bought the garage and automobile business of Peugh & Kelly.

Roy Herman, Macksville, Kan., has opened a repairshop.

J. H. Bleecker, Marysville, Kan., has moved his tire repairshop from 519 Broadway to 107 South Fifth Street.

Henry & Calhoun, Osborne, Kan., has succeeded Henry's Tire Shop.

The Hagberg Auto Supply Co., Wichita, Kan., recently reorganized, has taken over the Hays building for a salesroom.

Cap Linhardt, Blane, Mo., has opened a repairshop.

Bower Moxley, Hannibal, Mo., has bought the vulcanizing plant of Henry Kech.

The Corrigan Tire Co., Gilham Road and McGee Street, Kansas City, has leased additional space at 2623 McGee Street, which will give it four times its present capacity. The new building is being remodeled and will be ready for occupancy in about 45 days.

The W. S. Hathaway Sales Co., Kansas City, has succeeded the Taylor Hathaway Motor Co., B. L. Taylor having sold his interest. The company distributes the Saxon in Kansas, northern Oklahoma, and western Missouri, and has recently taken on the Day-Elder truck for the same territory. A. J. Murray has charge of truck distribution and sales.

J. C. Reed, Milan, Mo., has bought the interest of Early and Burgher in the Milan Vulcanizing Co.

W. S. Woodson, Monroe City, Mo., has bought an interest in the Overland company's branch.

August C. Ritterbusch, Owensville, Mo., has bought the Owensville Garage from A. J. Hosfield.

R. L. Scott, Southwest City, Mo., has bought the garage of Dr. E. G. Croxdale.

Virgil Logan, Unionville, Mo., has bought a half interest in the Capital Trail Garage from O. H. Clapper.

Helvey & Berry, Warsaw, Mo., have bought the Holloway Garage.

W. T. Foster, Windsor, Mo., has bought the tire repairshop of Perry & McClelland.

The Sterling Motor Supply Co., Ada, Okla., recently organized, will establish wholesale departments at Ada and Oklahoma City for tires and accessories. The eastern part of the state will be supplied from the Ada house and the western from Oklahoma City. J. R. Hounshell is president of the company.

Tom Cooper, Ardmore, Okla., has moved his garage to a new building at West Main and D Streets.

W. J. Crites, Bartlesville, Okla., has bought the Capital Hill Repairshop.

Hastings & Montgomery, Broken Bow, Okla., have succeeded the firm of Calliham, Hastings & Montgomery.

T. J. Griffin and **B. G. Chaney,** Marietta, Okla., have formed a partnership and will conduct an accessory business.

The Markham Motor Co., Oklahoma City, has bought the Oklahoma Saxon Motor Co. and has moved into the Oklahoma company's building at 804 North Broadway.

The Standard Tire & Accessory Co., Oklahoma City, has moved to 9 North Dewey Street.

Radecke & Mudge, Okmulgee, Okla., has moved to new quarters at 215 South Grand Avenue.

W. H. Davenport, Cooper, Tex., has bought the Mitchell Motor Co. from Sam Henson and assumed control.

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Culp & Woods, Cooper, Tex., has reopened the Motor Inn.

A. M. Yeary, Laredo, Tex., has sold his storage battery business to S. X. Callahan.

The Robertson Motor Co., Mineral Wells, Tex., has opened new salesrooms at 108 North Mosquito Street.

The Byrd Motor Truck Co., Nacogdoches, Tex., has been sold to the Baxter Garage Co.

New Garages

Arthur McCord.....Americus, Kan.
Geo. Peterson.....Atlanta, Kan.
J. A. Mardeux.....Clyde, Kan.
J. M. Wheeler.....Holstead, Kan.
Frank Lindsley.....Iola, Kan.
Claude Randall.....Sparka, Kan.
C. W. Lord.....Wamego, Kan.
John Noll.....Wamego, Kan.
D. J. Hyatt.....Wichita, Kan.
Norfleet & Ream (addition).....Butler, Mo.
W. A. Ryno & Son.....Diamond, Mo.
Walter Phillips.....Fisk, Mo.
Propes & Oyerly.....Mound City, Mo.
J. M. Gingery.....New London, Mo.
L. T. Beezley.....Stillwell, Mo.
Fowler & Spence.....Unionville, Mo.
Henry Hartbaugher (addition), Washington, Mo.
J. S. Denton.....Commerce, Okla.
Joe Donahee.....Ponca City, Okla.
C. N. Jeyner (addition).....Ongleton, Tex.
Hill Motor Co. .....Orange, Tex.
Cantrell & Shows.....Tylia, Tex.

NORTHWEST

Ed McGowan, Anamosa, Iowa, has bought the garage of Henry Hellberg.

Roy and Clinton Hutt, Bingham, Iowa, have bought the Johnson Garage, Blanchard, Iowa.

J. E. Gibson, College Springs, Iowa, has bought the interest of Elmer Dugan in the Gibson & Dugan Garage.

F. A. Kunts, Decorah, Iowa, has sold his garage to W. R. Wheatman.

Evans Motor Co., Early, Iowa, has bought the Pudenz Garage.

The Harris Auto Co., Harris, Iowa, has bought the garage of B. O. Smith. The new organization is composed of several Harris business men.

A. A. Cutting, Iowa Falls, Iowa, has opened a repairshop.

Fred Rodewell, Malvern, Iowa, has bought the Anderson Garage.

O. B. Dutton, Nevada, Iowa, has sold his interest in the Central Iowa Garage to his partner, J. P. Bernicker.

Rubottom Brothers have bought the garage and repairshop of the Einspahr Automobile Co., Odebolt, Iowa.

James Esden, Tabor, Iowa, has bought the repairshop of Sidney Reade.

The Reece Auto Co., Union, Iowa, has bought the New Providence Auto Co.

Clifford Lindblom, Bethel, Minn., has bought the Service Garage.

Peter Drong, Browerville, Minn., has leased the Motor Inn to C. L. Smith of Ellsworth, Wis.

John Dunrud, Middle River, Minn., has bought the interest of his partner, E. W. Rud, in their garage business.

Friach & Johnson, St. Charles, Minn., have bought the Hansen automobile business at Byota, Minn.

John T. Olson, Storden, Minn., has bought Halvor Bang's interest in the Storden Garage.

Stalker & Hayes, Albion, Neb., have bought the Albion Garage.

W. T. Grace, Archer, Neb., has bought the Archer Garage from C. C. Michaelson.

Clarence Connor, Auburn, Neb., has bought an interest in the Auburn Tire & Repair Co.

J. B. Gossard, Bloomfield, Neb., has bought the interest of his partner in the Gossard & Alderman Garage.

Phillip Parker, Clearwater, Neb., has bought the garage of Weber & Co., Orchard, Neb.

John Kasparek, David City, Neb., has bought the Ford Garage, Brainard, Neb.

Harry Faughn, Fairbury, Neb., owner of the Reo Garage, has bought the interest of John Beaver in the Beaver Garage, Third and F Streets.

M. L. Knowles & Son, Fullerton, Neb., have opened a repairshop.

John Mainard and **E. E. Frye**, Gering, Neb., have bought the garage of Ayers Brashear.

M. A. Beamish, Gering, Neb., has opened a repairshop.

Ostrich & Zimmerman, Gothenburg, Neb., have bought the garage of E. E. Day.

The Glass-Evans Auto Co., Grand Island, Neb., has moved to a new garage and salesroom.

The Reid Rubber Works, Grand Island, Neb., has moved to new quarters and is installing a plant for rebuilding old tires.

The Grand Island Motor Co., Grand Island, Neb., has opened a new salesroom and has added the Chevrolet.

Fred Flynn, Grant, Neb., and **J. R. Flynn**, Omaha, have bought the Grant Garage, Grant, Neb.

Herman Warner, Gretna, Neb., has opened a repairshop.

A. F. Swartz, Hildreth, Neb., has bought the garage of Maynard Goodwin.

Nofsnoger & Smoke, Humboldt, Neb., have opened an accessory store.

J. W. Tannehill, Humphrey, Neb., has bought the repairshop of Henry Lachnit.

Whitesel Brothers, Kearney, Neb., have bought the repairshop of the Ridder Garage, and leased it to W. T. Headley and E. H. Kolbo.

George Kroening, Lawrence, Neb., has bought the garage of James Marshall.

Fred Robertson, Lewellen, Neb., has opened a repairshop.

L. H. and **Frank DeBrown**, Lincoln, Neb., have bought the Wertz Automobile Co. and changed its style to the DeBrown Sales Co.

L. H. Spahr, Loup City, Neb., has opened a repairshop.

Fred Haas has bought the garage of Jack Hall, Madison, Neb.

Earl Goodwin, Merriman, Neb., has bought the Eli Garage.

E. C. Brown, Morrill, Neb., has bought the Up-To-Date Garage.

H. B. and **Roby Boyer**, Mullen, Neb., have bought the building, stock and fixtures of the Thomas P. Wood Auto Supply Store.

Francis K. Klugman and **J. W. Koenig**, Nebraska City, Neb., have bought the Motor Inn from Mapes & Co.

The Knudsen Automobile Co., Omaha, has moved to 2107 Farnam Street.

The Auto Exchange, Omaha, has moved to 2059 Farnam Street.

The Jones-Opper Co., Omaha, has taken additional space in the building at 2212 Harney Street for a truck service station.

The Iowa Motor Truck Co., Omaha, has moved to 606 First National Bank Bldg.

H. Becker, Omaha, has completely remodeled his salesrooms at 809 South Sixteenth Street.

William Breuninger, Plymouth, Neb., has sold his garage.

Johnson Implement Co., Ralston, Neb., has bought the Skinner Garage.

Charles Jackson, Scottsbluff, Neb., has opened a repairshop.

The Peterson Auto Co., Seward, Neb., has bought the Franklin Garage.

Samuel and **C. C. Perry**, Sidney, Neb., have bought the Brewer Garage, and Harry Brewer has taken the repairshop.

John Bates, Staplehurst, Neb., has bought the garage of Frank Osterloh, Thayer, Neb.

Eaton & Strong, Syracuse, Neb., have bought the Stover Garage.

Welch Brothers, Tekamah, Neb., have bought a new building for their garage.

S. G. Cram, Wahoo, Neb., has bought the repairshop of Jerry Palas.

E. Nelson, Wymore, Neb., has opened a repairshop.

Carl Bomstad, Coulee, N. D., has bought the Claude Mielke Garage.

Bimler Bros., Niagara, N. D., have bought the Niagara Garage.

L. V. Coulter, Williston, N. D., has bought Motor Inn from E. B. Link.

N. G. and **E. E. Glass**, Humboldt, S. D., have bought the North Garage.

Louis Brown, Martin, S. D., has bought a half interest in the Martin Garage from David Dabfeaux.

Adolph Mettler, Menno, S. D., has bought the August Ritterhaus interest in the Menno Auto Supply Co.

Allen Love and **J. S. Johnson**, Mobridge, S. D., have opened a repairshop.

James Meath, Rapid City, S. D., has bought the accessory business of E. J. Norris.

G. A. Arnott, Wessington Springs, S. D., has bought J. F. Walker's interest in the Springs Garage.

Joseph Hrachovec, Tyndall, S. D., has bought an interest in the John Hrachovec Garage.

New Garages

W. F. Schreiber.....Cedar Rapids, Ia.
Boyd Garage.....Creston, Ia.
O. S. Peterson.....Dows, Ia.
Moser Brothers.....Guttenberg, Ia.
Harry Jansen.....Harlan, Ia.
John Vant Hull.....Hull, Ia.
A. H. Byars.....Jefferson, Ia.
Cooney & Miller.....Malvern, Ia.
E. Jones.....Missouri Valley, Ia.
Plummer Tire Shop.....Nevada, Ia.
McKenney-Seabury Garage.. ..Pisgah, Ia.

EAST

J. N. Pirong, 238 Herkimer Street, Brooklyn, maintaining a repair and service station for the Franklin and Marmon cars and Little Giant trucks, will move to more commodious quarters about July.

The Brooklyn Branch of the Chevrolet Motor Co. of New York will move from its present location at 1505 Bedford Avenue to Bedford Avenue and St. Marks Avenue, where a new building is almost completed. The entire first floor of the building has been taken on a 10-year lease, and a mezzanine balcony will provide office quarters. The removal will take place about July 1. The new service station at 1530 Atlantic Avenue was occupied early in April and has a floor space of 15,000 sq. ft. A full machine tool equipment will shortly be installed.

Blank & Rode, 1129 Bedford Avenue, Brooklyn, have opened a shop for repairing tires and tubes at this address, where they have the entire first floor. Mr. Rode was formerly with Thompson & Weeb of Brooklyn.

A. Jungkind, 1100 Bedford Avenue, Brooklyn, has purchased the entire interest in the tire repair business of Jungkind & Vogler with branches in New York and Brooklyn. The firm name has been changed to A. Jungkind.

Burke & Disken have opened a garage at 48 Boerum Place, Brooklyn. Three additional buildings will be altered to eventually provide storage for 50 cars. A full line of accessories will be carried and equipment is being installed for vulcanizing. Repairing of all kinds will be done, but Ford cars will be the specialty.

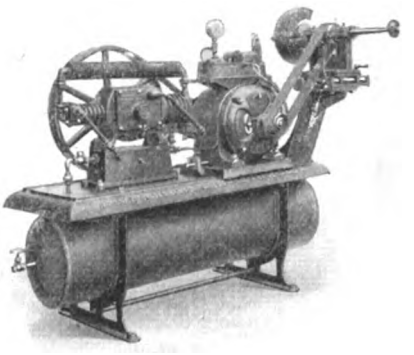
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Accessories

U. S. SAFETY LOCK FOR FORDS

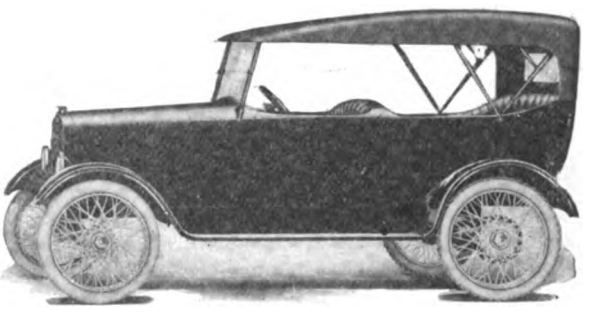
A steering wheel lock for Ford cars consisting of a wheel with a tumbler in one of the spokes which when locked in, fastens the wheel to the shaft, and when locked out, allows the wheel to turn without moving the shaft. A Yale lock is used, and two keys are provided. Can be installed in short time without machine work. Price $7.50.—U. S. Auto Lock Co., 3845 Wabash Avenue, Chicago.





U. S. COMPRESSOR AND BUFFING HEAD

A combined buffer or grinder head and two-stage automatic air compressor in one rigid unit so that either may be operated independently or both at once by the same ½ hp. motor which has a pulley at each end, one pulley belted to buffer and one to compressor. Motor is fully enclosed. Buffer will take two 8 in. wheels.—United States Air Compressor Co., Cleveland.



NATIONAL BODIES FOR FORDS

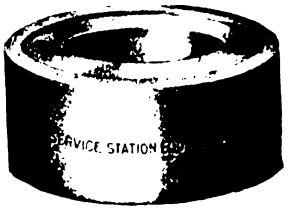
Bodies for Fords in two and five-passenger models, the bodies including windshield, one-man top, fenders, skirts, running-boards, instrument board, hood and new radiator 3 in. higher than the Ford radiator. Price $250.—National Body & Mfg. Co., Nashville, Tenn.

AD-EL-ITE ANTI-FRICTION OIL

An oil for preventing noises and squeaks in springs, generator, magneto, oil pump, shock absorber, etc. Put up in cans containing quarts for 85 cents, pints for 50 cents, half-pints with spout for 40 cents and quarter-pints with spout for 25 cents.—Adams & Elting Co., 716-726 Washington Boulevard, Chicago.

C-E-Z CELLULOID CLEANSER

A cleanser and renewer for celluloid that removes dirt, scratches and discolorations, preserves the celluloid and prevents the adhesion of moisture. Put up in double-ended cans with screw tops. Price 50 cents.—Adams & Elting Co., 716-726 Washington Boulevard, Chicago.



FORD TRANSMISSION DRUM SUPPORT

A Ford transmission drum support used to support the transmission drums on the bed of the arbor press when removing or pushing out the bushings. Has three different positions so that it can be used on all three drums. Price $2.—Service Station Equipment Co., 233 W. Schiller Street, Chicago.

JOHNSON'S HASTEE PATCH

Patching material and self-vulcanizing liquid, the material consisting of three layers, raw rubber, vulcanized rubber and khaki fabric. Claimed to make a permanent patch in three minutes. Small size contains 27 sq. in., to make 25 average patches, price 50 cents. Medium size contains 81 sq. in., or enough to make 75 average patches, $1. Large size, 324 sq. in., for 300 patches, $3.—S. C. Johnson & Son, Racine.

AVRIGID CURTAIN WINDOW

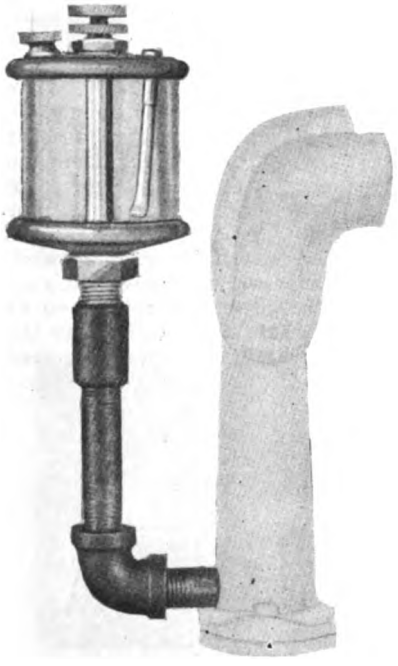
Plate glass window curtain having inside gripping ring and retaining ring, the former having resilient fingers and spurs to hold the curtain material which is folded over around it. These fingers also hold the glass tight. Made in several types for both single and double or lined curtains, and also in a flush or frameless style.—Ever-Rigid Auto Window Mfg. Co., 1017-1019 South Figueroa Street, Los Angeles, Cal.

AD-EL-ITE LIQUID WAX

A liquid wax body polish which may either be sprayed on or rubbed on with a piece of cheesecloth. Half-pints 50 cents, pints 75 cents.—Adams & Elting Co., 716-726 Washington Boulevard, Chicago.

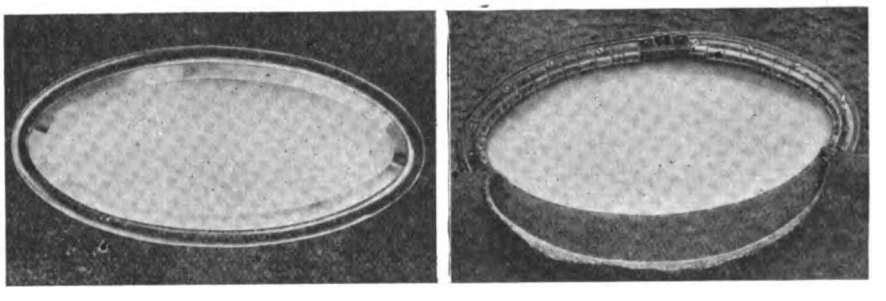
AD-EL-ITE LIQUID CLEANER

A liquid body cleaner and reviver to remove stains, road oil, water spots, mud splashes, dullness and blemishes. Contains no grit or acids and renews and revives the finish. Half-pints 50 cents. Pints 75 cents.—Adams & Elting Co., 716-726 Washington Boulevard, Chicago.

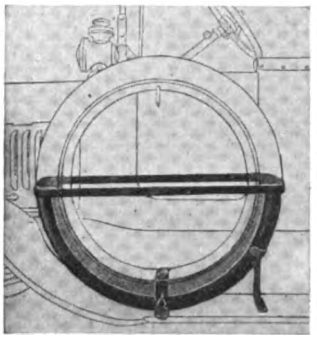


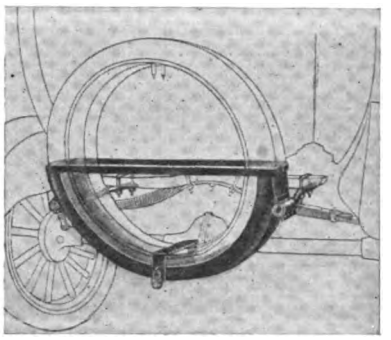
ACME AUTO CUP

A glass cup piped to the intake manifold to feed dry graphite to the cylinders while the engine is running. The frame of the cup is aluminum.—Arrow Specialty Co., 16-32 W. Sixty-first Street, New York.



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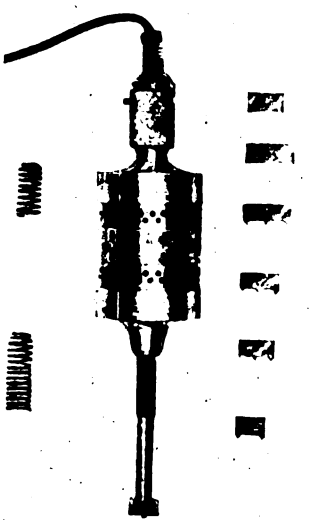




HUMBOLDT TIRE CARRIERS FOR FORDS

These are of semi-circular cradle type and will take 3 or 3½-in. tires with or without demountable rims. The cradle is one piece of sheet steel with component parts welded on. Finished in baked ebony enamel, packed in individual cartons, and supplied for one or two tires. The rear carrier is arranged to carry license and rear lamp, and will fit all Ford models. Prices are: Single side carrier, $4.50; double side carrier, $6; single rear carrier, $6.50; double rear carrier, $8.50. —Humboldt Machine & Stamping Co., Long Island City, N. Y.





WARNER WHEEL-TILT LOCK FOR FORDS

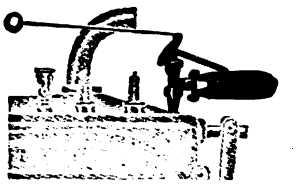
A combined tilting steering wheel and lock for Fords. When wheel is in tilted position, steering mechanism is securely locked. Ford steering wheel is utilized and device consists of three malleable castings with pin and tumbler lock. Can be easily installed without machine work. Price $7.—Warner Electric Co., Muncie, Ind.

ECLIPSE ELECTRIC VALVE GRINDER

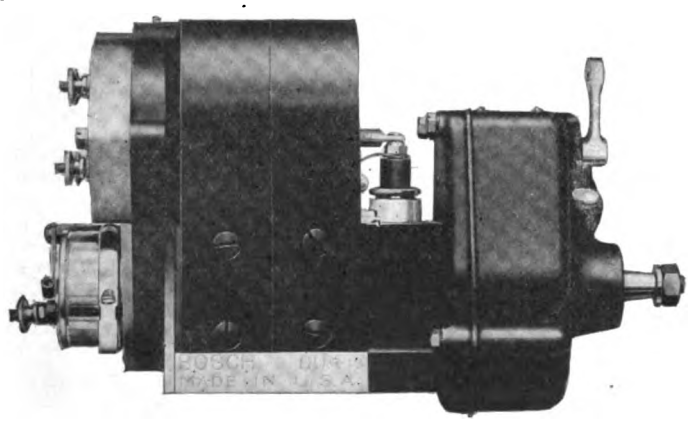
A portable electric valve grinder which gives a variable rotary oscillation to the valves at the rate of 2000 oscillations per minute. A vertical handle with plunger switch affords perfect control, while the weight of the device is such as to give proper pressure. Seven detachable bits for different style valve heads allows use on every valve made. Lifting spring for valves and 7 ft. of extension cord with swivel plug accompany each machine.—Eclipse Valve Grinder Co., Kansas City.

SERUM AUTO HORN

A horn or whistle which uses the compression of one cylinder. Attached by removing pet cock or priming cup and installing horn instead. Operated by pull ring on dash or any other place, connected by wire to horn. Price $3.50.—Charles H. Serum & Co., 3301 W. Chicago Avenue, Chicago.



Bosch Brings Out Impulse Starter

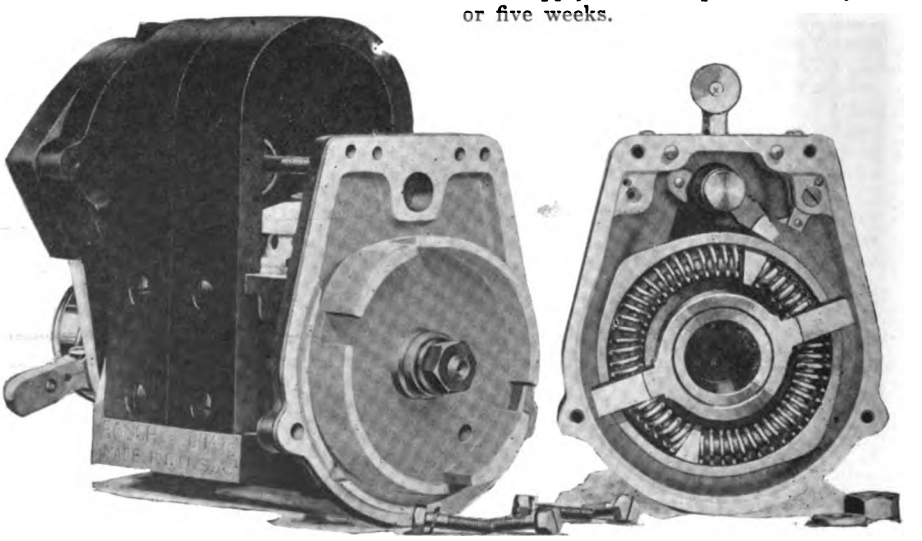


FOR motor truck and tractor ignition it is now customary to use a magneto without battery auxiliaries, and as the engines in general are so large that it is difficult to spin them, a so-called impulse starter aids greatly in starting, especially in cold weather.

A magneto with impulse starter incorporated has just been brought out by the Bosch Magneto Co., New York. The starter is of the type making use of coiled springs. It is located between the magneto armature and the driving shaft. When the engine is cranked the armature is held stationary by a pawl while energy is being stored up by the compression of the springs. After the driving shaft has been turned through a certain angle the pawl is released by a cam and the energy stored up in the springs imparts to the armature a quick rotary movement, resulting in the production of a hot spark.

When a speed of 120 r.p.m. is attained by the engine the impulse starter is automatically disengaged and the power is then transmitted through the springs of the starter to the magneto armature, the starter acting as a flexible coupling. The starter is of rugged design. All its working parts are steel, it is claimed to be well balanced and is completely enclosed in a dust-proof aluminum housing integral with the magneto itself. The heavier part of the starter is carried on its own sleeve bearing, hence there is no additional strain on the magneto bearings due to the starter.

In order to set the starter a lever mounted on a shaft projecting from the starter housing at the front is moved to the operative position, either directly or through suitable linkage. The starter is so constructed that if it should be accidentally engaged while the engine is running it will not go into operation and no damage will result either to it or to the magneto. The only attention required is to supply a few drops of oil every four or five weeks.



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Demonstrating The Fordson Tractor

Between 500 and 600 Farmers Saw this Test Staged by the Ohio Distributer at Dayton Last Week

The Story Appears on Page 42.

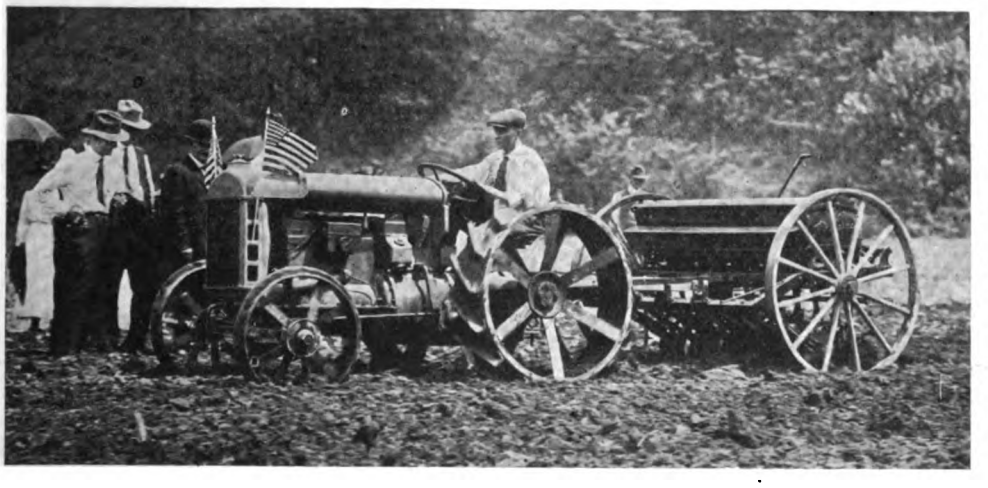


General view of the tractor at work and part of the crowd that witnessed the demonstration





The farmers who saw the test were not backward in discussing the quality of the work. At the right is Mrs. G. B. Ehrmann driving one of the tractors



Fordson tractor drawing an Emerson seed drill over land which had previously been plowed by the same tractor



G. B. Ehrmann and E. H. Bryant, who form the Bryant Tractor Co., which will distribute 1000 Fordsons in the State of Ohio

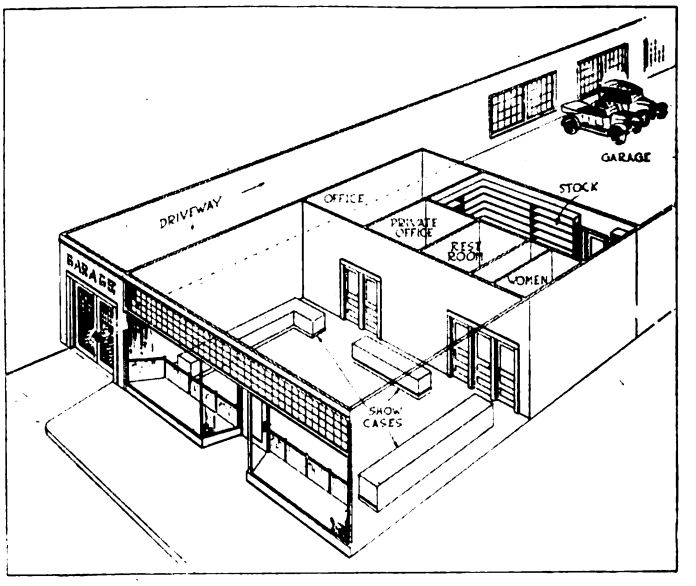
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How to Lay Out a Building—6

THIS is the sixth of a series of articles which take up in detail the layout and arrangement of buildings for the dealer, garage and repairshop.

If you are thinking of building a garage, salesroom or service station, and are puzzled as to the proper lay-out of the building, send your plans to us. We shall be glad to help you. Include all necessary data and, if possible, a rough sketch.—EDITOR.

By Harold F. Blanchard



This is a perspective view of Plan No. 8, which is shown in Fig. 24 on the opposite page

Plan No. 6

FIG. 22 is as modest a layout for an accessory store and office as possible. There is a small store, small office, fair sized stockroom and toilets.

Any of the shop units shown on plans for corresponding width of plot may be used on this plan. Car arrangement in the garage may be similar to any of those shown on past plans of the same general shape as this one.

Only one accessory display is shown. It is strongly urged, however, that the full window frontage be used for display. This means that a sliding garage door cannot be used, or if one is used it must be placed back far enough to clear the window.

Plan No. 7

FIG. 23 is a much more desirable plan than that shown in Fig. 22, although it takes up slightly more space.

It is a preferable plan because the store is larger and there is a restroom for ladies, an important adjunct to the garageman who realizes the necessity of catering to women who drive or ride in machines.

Plan No. 8

FIG. 24 is the sort of layout the aggressive garageman who believes in pushing accessory sales to the limit will want.

There is a commodious store, a stockroom of sufficient size but not too large, a restroom for ladies, a general office large enough for three or four desks, and a private office where the proprietor or manager can do his executive work undisturbed.

It seems needless to point out that any of these plans may be used on corner locations without any change, except perhaps in some cases it might be desirable to reverse the layout so as to have the office next to the side street window.

It may be possible for a garageman to adopt one of these plans bodily. They are very easily altered slightly, however, and it is thought that individuals can make such alterations to suit themselves.

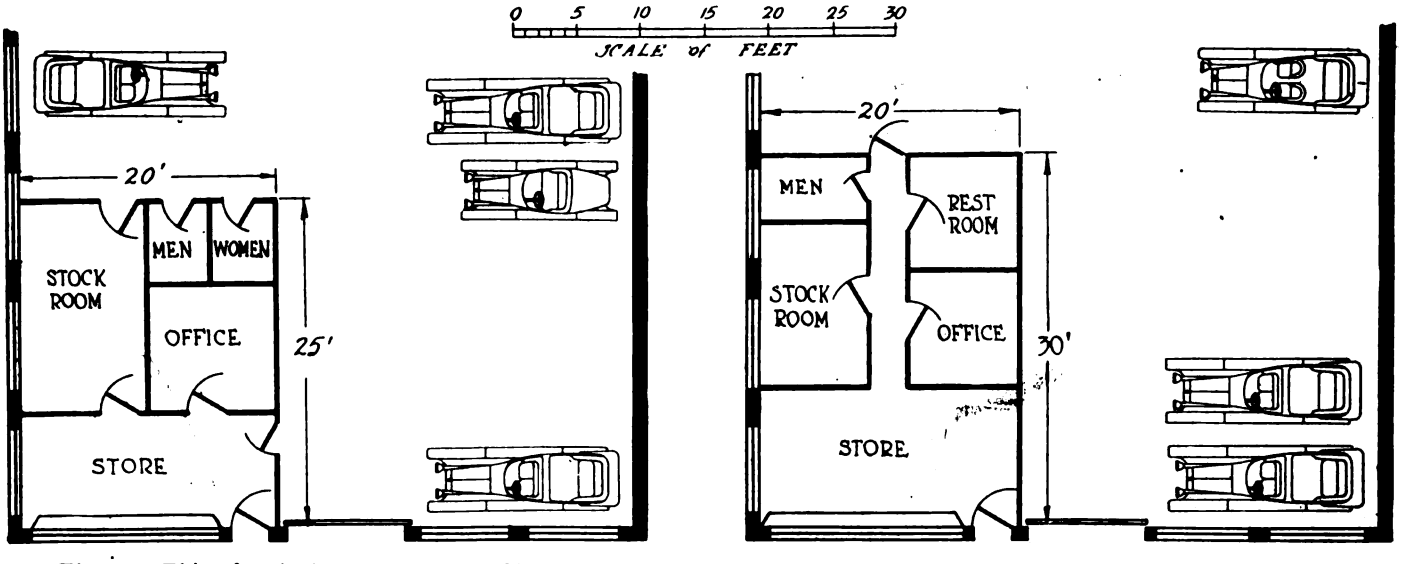
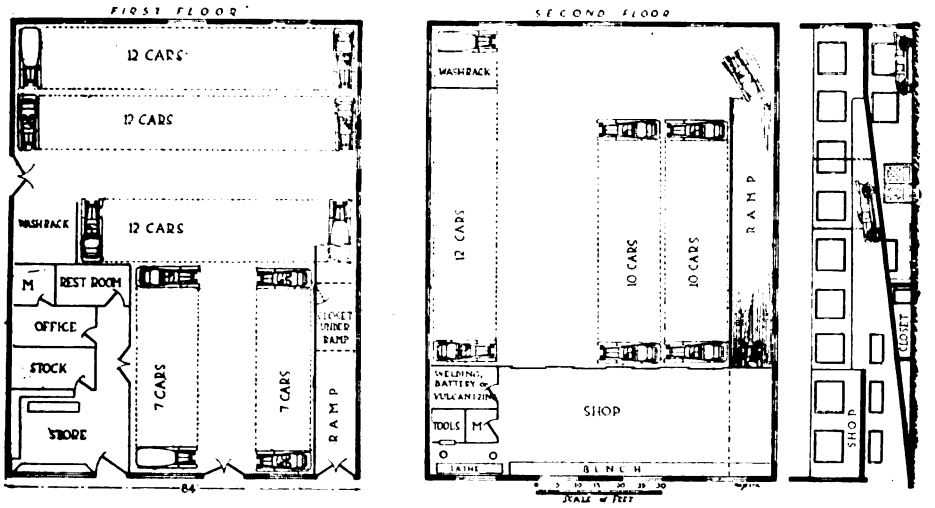


Fig. 22—This plan is for a modest establishment, though a better arrangement is shown in Fig. 23 at the right. This, however, requires a little more space

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The plot of ground in this case is slightly too narrow to lay out a good garage arrangement, though the other departments should be satisfactory

stories, shop on the second floor with a ramp; no basement. I remember about a year ago the Motor World published a good many plans.

As we have a training camp here I sent all old numbers to the boys at camp. If you will kindly inform me where I could get such plans, will be very much obliged. —J. A. Roose, Majestic Garage, Rockford, Ill.

Herewith is a plan which has been very carefully worked out to meet your requirements.

You did not state which side the alley was on and therefore the plan may be the reverse of what you want.

If you sell cars it seems likely that you will want a showroom; however, there was nothing to indicate that you do sell cars; therefore this was left off.

The shop may be too large or too small but can be easily altered.

Using Window Space

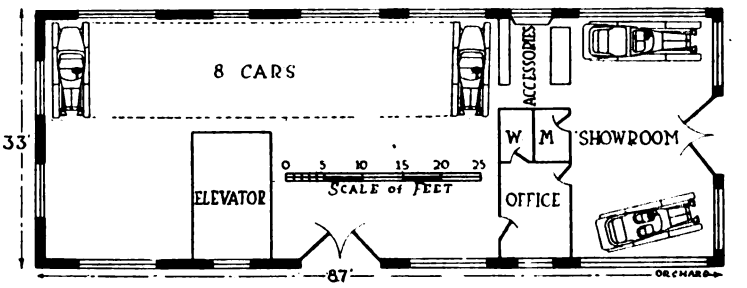
Editor Motor World: We are enclosing plan of our building which we are now occupying but which must be remodeled or enlarged to take care of our requirements.

We must have a showroom and yet we don't feel like giving up storage space. We have four plate glass windows—two in the office and two in the garage—and should we extend our present office across the entire front of the building, it would make a very satisfactory showroom and office but it would necessitate making a new entrance.—The R. P. Orchard Supply Co., Belford, Ohio.

Your building is so narrow that, although it is possible to lay out a good showroom and office arrangement it is out of the question to produce a satisfactory layout for the garage.

It is better to use the whole width of the front for display purposes than to employ part of it for the office. The space at the side which we have chosen does just as well. There is provision for a small accessory store and stockroom combined, with a showcase along the front to partially separate this room from the showroom.

None of the rooms in the front of the building are any too large, but if more space were taken up by them the garage space would be just that much more crowded.



Suggested lay-out for a garage on a plot 100 x 84 ft.

Plan for Plot 110 x 84

Editor Motor World: We are contemplating building a garage on a plot 110 ft. long by 84 ft. wide. There is an alley running alongside. Building to be two

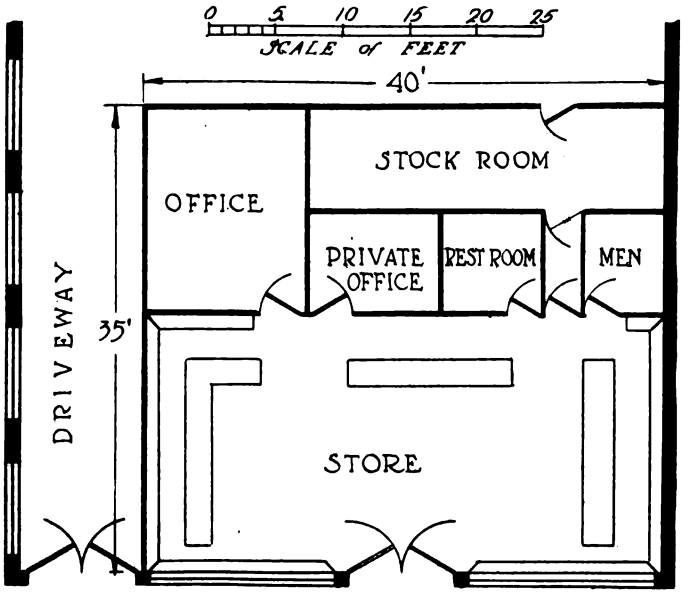


Fig. 24—The aggressive garageman will want a lay-out like this, where every opportunity has been grasped to take full advantage of the possibility of accessory sales. The plan is shown in perspective on the opposite page

Blind Heads Philadelphia Garages

PHILADELPHIA, May 17—The Philadelphia Garage Association at its annual meeting permanently changed its headquarters from O'Connell's Hall, 2156 North Broad Street, to the Adelphi Hotel, Chestnut Street, as being a more central location for the members. The following officers were elected:

President, George G. Blind, Mercury Garage, 2117 North Broad Street; vice-president, J. A. Dionne, Norris Garage, Twelfth and Norris Streets; secretary, John R. Fox, 650 Drexel Building, and treasurer, Harry Ebert, Ebert Bros.' Garage, 2429 North Broad Street. Trustees were elected as follows, forming an entirely new board: Frank Lussee, L. F. Pfeifer, Charles E. Mieswinkel, J. B. McGill and W. B. Jones.

The date for the motor car run to Atlantic City, which will be known as the "Atlantic City Sociability Run of the Philadelphia Garage Association," was fixed for June 25, and it was decided to invite the accessory and oil dealers to participate in the event, which it is intended to make an annual affair. After enjoying the hospitalities of Atlantic City over night, the return run will be made the following day, on the 26th. It is expected that a large number of cars will be in line.

More Money For Perfex

RACINE, May 20.—The Perfex Radiator Co. has increased its capital stock from $15,000 to $1,000,000 and already is carrying out an extension plan.

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Drive-away Bureau

ASK FOR INFORMATION—AND—GIVE US INFORMATION

THIS department will be continued indefinitely. Its aim is to provide a clearing house for information as to routes, road conditions, hotel rates, garage rates, unfair conditions, new routes, etc. Motor World will make an effort to get any information you desire. In return, all dealers are requested to forward promptly any information they have regarding drive-aways. Send your information so it will reach New York not later than Monday of each week.

Watch Your Drive-aways

Editor Motor World: I know that you are one of the great and sincere friends of the drive-away and therefore have selected you as the target for some observations on that system as viewed first-hand right here on the firing line. I am forwarding them to you because you are indeed such a friend of the drive-away and would want to save it from faults that threaten to injure the proposition severely.

From your vantage point in Manhattan and the good words you heard in Cleveland last winter, it may be that the drive-away possesses in your estimate naught but virtues. Such is not the case, however, among those whose experience runs over many months and hundreds of cars, and those who have literally sat beside the road over which the greater proportion of the drive-away cars have been transported.

Some day, however, when you want to write a real critique of the drive-away and incorporate therein some friendly warnings, incorporate these two:

1—Cars are released from factories before they have been completely or properly inspected and tested.

2—Brand new cars are driven over the road in such a careless manner as to permanently injure them.

These two notions of the undersigned are the growth not only of observations from the side of the road but discussions among dealers in which I was fortunate enough to participate as listener. It will occur to you, I am sure, that both will act against the drive-away among the dealers and also pronouncedly among owners; and that both can be readily cured.

At the factories these days there are lines of dealers with their driving crews waiting for cars. They are anxious to take whatever they can get and drive home. Several specific instances were related of cars with important parts missing and otherwise deficient, the lack and faults not turning up until too late.

The second fault lies more largely with the dealer. Of course we appreciate that factories recognizing that no brand-new car should be driven at top speed, paste orders on the windshield to prevent the cars being operated faster than 25 miles an hour or some such speed. And yet last week when a party of us were driving in from Lima we were traveling about 40 miles an hour (no comments please) and a bunch of drive-aways went past us!

That was not exceptional or unusual, you can be assured by hundreds who have participated or watched some of the thousands of cars that have been driven over the roads leading into Cleveland. The damage to a new car is inevitable and is sure to injure the car with the owner.

Both of these facts to which I direct your attention may seem extremely simple; but the truth is they are growing, and no real, honest-to-goodness steps have been taken to eliminate them. The cases in which any but perfunctory action has been taken to remedy the situations are few.

I know of one in particular which might interest you. One dealer in Cleveland, who has been driving cars in for many months, enforces the rule that each driver must keep in sight the car behind him.

Don't set me down as against the drive-away, for either one of the following reasons: (1) Because of the foregoing observations, or (2) because I know you are for it. While the latter might influence my opinion in most matters, I assure you that I am for the drive-away in spite of your favoring it. Hoping you are the same, I am, Very truly yours, HERBERT BUCKMAN.

[Buckman, who writes the foregoing letter, is assistant secretary of all motoring and trade activities in Cleveland and northern Ohio, and is in close touch with all trade subjects.—ED.]

St Louis

ST. LOUIS, May 17—Chief drive-away dealers in St. Louis are the Overland, Weber Implement and Auto Co., Maxwell, Vesper-Buick Auto Co., Bleeck Automobile Co., Crow-Elkhart, Kardell Motor Car Co., Reo, Deluxe Automobile Co., Oldsmobile.

Routes to St. Louis

Detroit to St. Louis—Detroit to Toledo over the Government Truck Route—From Toledo through Defiance, Fort Wayne, Alexandria, Anderson, Indianapolis on Old Trails road to Terre Haute, to Effingham, to Vandalia, to Greenville, to Collinsville, to St. Louis.

Only detour in this route is south of Indianapolis for wet roads. Where Old Trails Route crosses the Ocean to Ocean road, the latter is taken through Rockville until Old Trails road is reached again. This is 18 miles additional, but worth it because of three sink holes on Old Trails route.

Except as above stated road very satisfactory.

No special hotels; all appear to be anxious for patronage and are inclined to give special rates to parties. Different firms patronize different hotels. Only trouble this year has been at Terre Haute where some hotels suffered somewhat from "rough necks" during earliest drive-aways and were inclined to turn down applicants. Guarantee of good conduct opened hotels again and things are reported satisfactory there now. Nearly all local firms in drive-aways visit service shops of their own cars en route.

No hotels or garages warned against as far as I could learn.

At Fort Wayne the police asked that cars be left at a market place near police station where police guard them over night. Indianapolis also provides parking sections and police detail. Only

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trouble so far reported has been in small towns where over-zealous mayors have failed to grasp the drive-away idea and think that firms are evading freight rates and license charges. No St. Louis driver has been fined, although some have been threatened with arrest. An overland driver was arrested in Hicksville, Ind., but threatened to have the Interstate Commerce Commission take up the case and was released.—CLYDE JENNINGS, Motor World representative.

Louisville

LOUISVILLE, KY., May 16—The following dealers are driving cars from factories in great numbers:

Bluegrass Motor Sales Co., 630 South Third Street, Grant; DeHart-Turner-Wood Motors Co., 624 South Third Street, Elgin; Dr. J. T. Chawk, 713 South Seventh Street, International truck; Liberty Motor Car Co., 505 East Broadway, Maxwell; Leyman Motors Co., 501 East Broadway, Buick; Overland-Louisville Co., Floyd and Broadway, Overland; Southern Motors Co., 615 South Third Street, Packard, Hudson and Dodge; K. S. Stiles, 904 South Third Street, Premier; Studebaker Corp., 405 West Broadway, Studebaker; Yager Motor Car Co., 1600 South Second Street, Liberty.

Routes to Louisville

Detroit to Louisville (usual route followed)—Instead of going south direct to Toledo via Sibley, Trenton and Monroe, detour to Ypsilanti, Milan, Petersburg thence to Toledo. From this city the drivers follow the route of the Dixie Highway through Bowling Green, Findlay, Lima, Wapakoneta, Piqua, Troy, Dayton, Hamilton, Cincinnati, Covington, Williamstown to Georgetown Ky.

Here the Dixie Highway is left behind and, from Georgetown to Louisville, the road leads through Frankfort and Shelbyville. Macadam, stone and gravel road with many stretches of concrete between Toledo and Dayton. All the roads on the route through Kentucky are good and no detours are necessary.

Cleveland to Louisville—Elyria, Oberlin, Wellington, New London, Greenwich, New Haven, Shelby, Galion, Marion, Marysville, Springfield, Dayton, then follow Dixie Highway to Georgetown, Ky., and on to Louisville via Frankfort and Shelbyville. Roads good.

Akron to Louisville—Akron, Marion, Columbus, Springfield, Dayton, then follow Dixie Highway south to Georgetown and on to Louisville via Frankfort and Shelbyville. Metal roads good.

Flint, Mich., to Louisville—Ann Arbor, Ypsilanti, Milan to Toledo, then follow Dixie Highway south to Georgetown, Ky., and on to Louisville via Frankfort and Shelbyville. Roads good. Conditions noted in Detroit-Louisville route.

Kenosha, Wis., to Louisville—Waukegan, Ft. Sheridan, Evanston, Chicago and follow Jackson Highway to Louisville.

Chicago to Louisville—Jackson Highway.

There are several routes between Indianapolis and Louisville from which to make a selection. The Jackson Highway route is via Franklin, Edinburg, Columbus, Seymour, Brownstown, Salem and Louisville. Instead of advising drivers to take the direct road between Salem and New Albany, the Louisville Automobile Club suggests that they take the route via Fredericksburg, then on to New Albany over the Paoli pike. In good weather some of the drivers make the trip from Seymour, Ind., to New Albany and Louisville via Scottsburg, which is the most direct route.

All of the drive-away managers report that the garages charge a rate of 50 cents a night for each car. Hotel rates vary, according to the class of hotel. They range from $1 upwards, the average price, however, being $2. None of the hotels or garages has been reported unfair.

Unless roads are torn up there will be little change in the foregoing road information. Few of the local distributers make weekly drive-aways.—C. G. SWEARINGEN, Motor World representative.

Westcott Dealer Goes Drive-away One Better

Has Cars Brought from Ohio Factory on Armleder Drive-away Trucks

NEW YORK, May 20—The Westcott dealer in this city, the Westcott Motor Car Sales Co., is working the drive-away idea in a truly efficient manner. Manager Heck is keeping in touch with the Armleder truck factory in Cincinnati, which drives many trucks to the East. Whenever he needs cars he notifies the Armleder factory, which has its eastbound drive-away trucks stop at the Westcott factory and load on Westcott cars. These are delivered to the Westcott dealer here in much better condition than if they were driven overland. The charge is about $150 a car.

Kansas City

KANSAS CITY, May 18—No dealers are now driving cars in any quantity from factory. Several have been driving rather regularly, and a few have made one or two trips, with as high as fifty cars, up to a month or so ago; nearly all are getting the cars they need, by railroad, now.

Patersons are being driven now from Flint to Kansas City. G. W. Compton, district sales manager, engineers the drive-aways. Like all the others who have driven, he says he is not going to use again the route he took before. The route he is going to take on his next trip (with ten Patersons) is from Flint to Ann Arbor; thence parallel the Wabash to intersection with a trail—which he states is the White Line—leading south to Terre Haute; from Terre Haute over the National Old Trails road to Kansas City, ferrying at Glasgow. The intersection referred to of the Wabash with the trail is 12 miles west of Lafayette, Ind.

J. Frank Martin, Buick Motor Co. manager here, says they are getting cars by railroad satisfactorily now. He says that they have never recommended routes to dealers who go after cars, and many different routes have been used, the dealers apparently finding plenty of information on routes at Flint. One Buick dealer had a $2,000 loss from collisions on one trip, covered by insurance, but generally cars have come through in good shape.

G. W. Compton, Paterson's district manager, says hotels and garages have been fair and accessible, there being no necessity for designating objectives or day's run. He cautions that negro drivers can find no hotel or eating accommodations at Lafayette, Ind.

He recommends that at least one expert mechanic be taken along with each group of cars driven, not depending on local garages for service. On his next trip, with ten cars, he will separate into three groups, as three or four is all that should be in any group—the loss of time, at $10 per day for each car, being too great when a larger number are held up by accident to one car. He tried vaselining the cars one trip—the vaseline caught the dirt and dried, and he had to revarnish the cars. He figured cost of going after, driving and refinishing each car as $72.50, or about $20 more than freight would have been.

Grants and Briscoes have been driven through recently, but distributers say they will not do it again unless conditions get much worse on railroads. There seems little trouble now in getting freight cars, flat and even box, though the securing of them is irregular and in bunches.

Wisconsin Registers 170,000

MILWAUKEE, May 20—Approximately 170,000 licenses already have been issued to car owners by the State of Wisconsin and applications continue to be received at a rate that makes it appear that the 200,000-mark will be reached before June 30. The total registration of 1917 was 164,531, a mark which was passed on May 10, 1918. A year ago at this time the total issue amounted to 114,500.

Prest-O-Lite Discontinues Milwaukee Branch

MILWAUKEE, May 20—The Prest-O-Lite Co., Indianapolis, has discontinued its Milwaukee branch at 528-530 Milwaukee Street, erected about a year and a half ago, and the building now is occupied by the Wisconsin Magneto Co., distributer and service station of the Bijur, Westinghouse, Dyneto, Eisemann, Connecticut, Splitdorf, Swiss-Elkhart ignition, lighting and starting devices; Norma ball bearings and the Van Sicklen speedometer.

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War Basis for All Dealers Urged by N. A. D. A.

Association's Directors and War Service Committee Plan to Release 30,000 Mechanics for War Work and to Effect War Efficiency for Whole Trade

ST. LOUIS, May 20—It is expected that 30,000 men will be released from retail automobile establishments for war service as the result of definite plans set under way at a two-day meeting of the board of directors of the National Automobile Dealers' Association held here Friday and Saturday.

This is in addition to the thousands of mechanical experts who have already entered various branches of the military service from automobile factories and service stations.

This action followed a request from the War Economy Board at Washington, of which A. W. Shaw is chairman, for the adoption of such measures by the automobile dealers and distributers of the country, as would release still more trained, all-round mechanics for military service where mechanical skill is required.

President F. W. A. Vesper of this city reported to the board of directors of the association that the War Economy Board had approved eight recommendations which had been previously drawn up by the War Service Committee, representing the Automobile Dealers of the United States, as told in Motor World April 24.

These recommendations cover the following points:

1—Elimination of unnecessary service, which, it is anticipated, would free many men.

2—The elimination of Sunday and night service except on cars used for commercial purposes.

3—The education of mechanics so that a greater number of men will be trained in the handling of combustion engines and motors.

4—The establishment of a cash basis to eliminate clerical help and office maintenance.

5—The education of automobile owners in making minor repairs and adjustments instead of depending on service stations for such minor work.

6—Economies in the use of fuel and lubricants and reduction in demonstrations and similar uses of cars which it has been necessary for the dealers themselves to maintain and keep out of necessary general use.

It is estimated by officers of the N. A. D. A. that an average of one man would be released from every retail automobile establishment in the country. This is stated by the officers to be an extremely conservative estimate. Six and seven men engaged in Sunday and night service is not an unusually large number under the old time arrangements, it is said. As there are nearly 30,000 automobile dealers in the country, the putting into effect of the approved war-time policies, it is anticipated, would immediately make about 30,000 men available for helping those who have already gone to take care of the American airplanes and motor trucks.

Representatives from several cities announced that steps had already been taken for the reduction of Sunday and night service, and that in those cities where the dealers had united in the elimination of unnecessary work, that central stations had been opened for performing necessary emergency work.

Dealers everywhere in the United States were called upon to enforce these regulations in a resolution adopted by the board of directors.

The sessions of the two-day meetings were occupied also with plans for increasing the general usefulness of the dealers' association. These were held at the Missouri Athletic Association. Dinner was tendered to out-of-town directors and representatives at the Sunset Hill Country Club, Friday evening, May 18, by the St. Louis Automobile Manufacturers and Dealers' Association.

Those in attendance at the meeting were: F. W. A. Vesper, St. Louis; Bart J. Ruddle, Milwaukee; P. E. Chamberlain, Denver; Geo. W. Browne, Milwaukee; Dean Schooler, Des Moines; A. E. Maltby, Philadelphia; J. H. Mac Alman, Boston; P. H. Greer, Los Angeles; Thos. J. Hay, Chicago; Prince Wells, Louisville; J. A. Graham, Minneapolis; Geo. D. McCutcheon, Atlanta; C. W. Hunt, Cleveland; Herbert Buckman, Cleveland; G. Elmo Holke, assistant secretary, St. Louis.

St. Louis Goes on War Service Basis

Votes to Cut Out Night and Sunday Service—Vesper Urges Full Co-operation

ST. LOUIS, May 20 — Automobile service in this community will go on a war basis June 1, on which date night and Sunday shifts in service stations will be eliminated. The date was fixed at a meeting of the St. Louis Automobile Manufacturers' and Dealers' Association Wednesday night. F. W. A. Vesper, president of the National Automobile Dealers' Association, was the speaker at the meeting, and he talked plainly to the dealers.

When one of them said, "I do not want to give up my Sunday and night service unless the other dealers do," he replied:

"There is nothing personal in my answer, but you have your choice of giving up this service this way or giving it up later because you are ordered to. If you are ordered to, you may give up more than your competitors. I can assure you that you will not suffer unfair competition as a volunteer very long."

Arrangements have been made with the Henry Motor Service Co. to establish four stations in the city where emergency service can be obtained by any owner, and reports will be made of such service to the regular service station at the opening of the next business day. The Henry company will not undertake to replace parts of cars or make extensive repairs, merely endeavoring to keep the car running, if possible, by emergency work.

Vesper covered his topic thoroughly before he submitted the question to the members present. He sketched briefly the wonderful growth of the industry to the point where the 4,000,000 cars now running have a greater seating capacity than the railroad passenger cars in use. He said that in this growth much of efficiency had been overlooked and that the motor car industry must now trim its sails for the test.

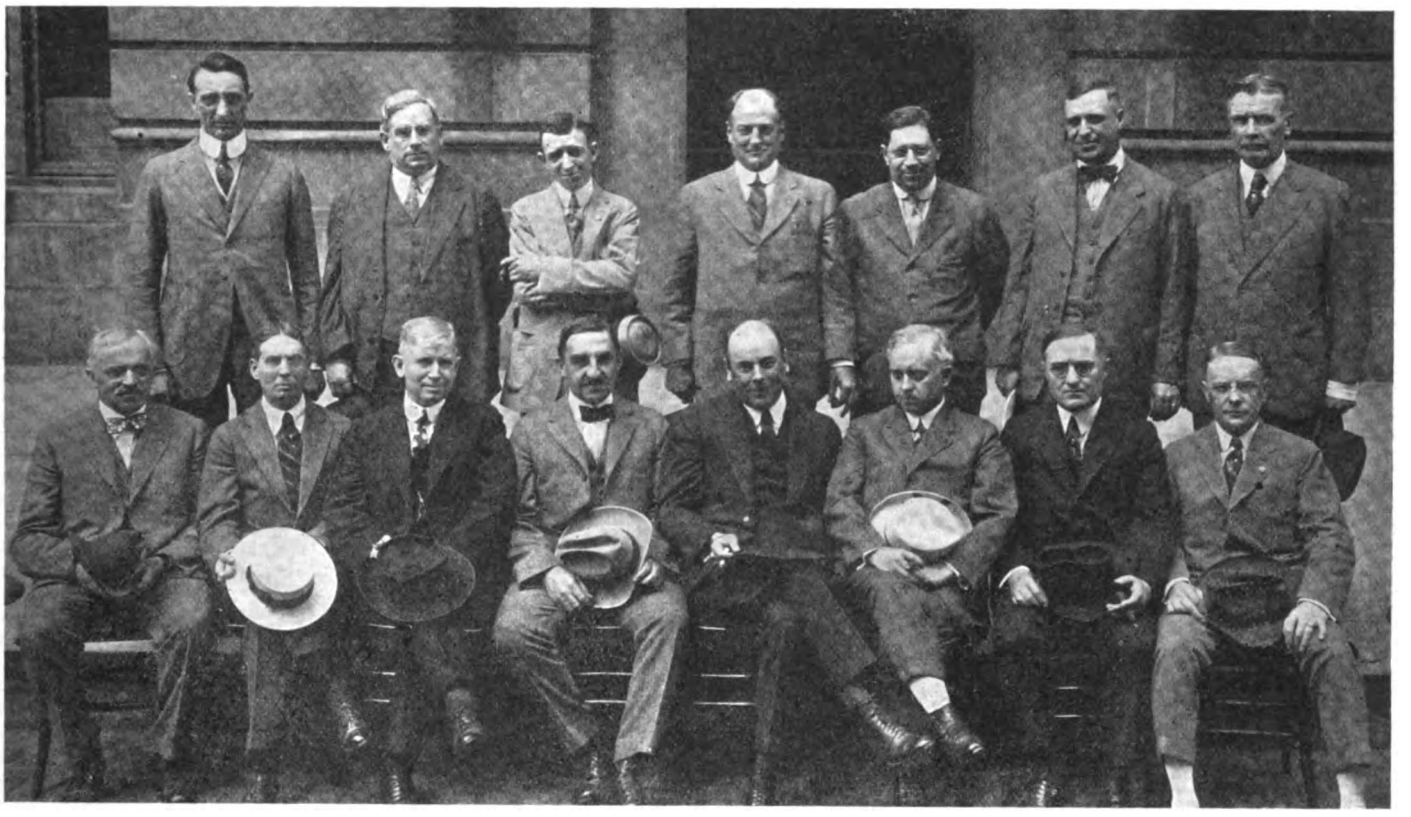
He made his appeal more forceful by announcing that the directors and the War Service Committee of the N. A. D. A. were to meet in St. Louis on Friday and Saturday, and he wanted to report to this body that St. Louis was fully aware of the condition of national affairs and was fully in line with the recommendations made by the War Service Committee to the Council of National Defense some weeks ago.

He told them that he had observed that most of the Sunday work was done for Sunday "chronics" who could just as well come some other day, and that only a small proportion of the night work really had to be done at night. "But the public must learn that mechanics must be conserved, and that they, as well as dealers, must put up with inconveniences," he asserted.

The resolution to adopt the emergency service plan was adopted without a dissenting vote.

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Directors at War Service Meeting



Standing, Left to Right—P. H. Greer, Los Angeles; Bart J. Ruddle, Milwaukee, secretary; G. Elmo Holke, St. Louis, assistant secretary; Thomas J. Hay, Chicago, treasurer; Herbert Buckman, Cleveland; Dean Schooler, Des Moines; John H. MacAlman, Boston. Sitting, Left to Right—C. W. Hunt, Cleveland; A. E. Maltby, Philadelphia; Prince Wells, Louisville; F. W. A. Vesper, St. Louis, president; George W. Browne, Milwaukee; George D. McCutcheon, Atlanta; J. A. Graham, Minneapolis; P. E. Chamberlain, Denver

Starting the First Airplane Mail Service



The inauguration of America's first regularly-established airplane mail service was started May 15, a Curtiss model JN-48 equipped with a 150-hp. Hispano-Suiza engine leaving Belmont Park, L. I., for Washington. The trip was made in 200 minutes

W. L. Hausman laid before the association general plans for the "Junior Officers' Bureau," and the Velie Automobile Co., Hudson-Phillips Motor Car Co. and the De Luxe Automobile Co. were named a committee to designate "junior officers" to work out details. This bureau is expected to work out plans for further conservation of motor car energy, both in use of cars and from a dealers' standpoint thus assisting in carrying out the ideas of the association.

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Farmers See Fordson Tractor Demonstration

Between 500 and 600 Assemble for Tests by Ohio Distributer—Women Drive

(*Pictures on page* 35)

DAYTON, May 17—Between 500 and 600 farmers witnessed a two-day demonstration of the Fordson tractor and Oliver plows held yesterday and to-day by the Bryant Tractor Co., Columbus, which is to handle the distribution of Fordsons for the State of Ohio. All the arrangements for the demonstration were handled by the Dayton & Trop Auto Co., local dealer. The field was on the farm of Rolla De Weese, a mile or so north of Dayton.

Not a hitch of any kind marred the event. Advertised to begin at noon, it was but a few minutes after that time when a Fordson, equipped with an Oliver No. 7 plow, turned the first furrow, and from then until the close of the demonstration late in the afternoon neither accident nor need for adjustment brought about delay. The tractors demonstrated their ability to pull two-bottom engine gangs, pulverizers, disc drills, road graders and trailers.

Nor were specially skilled operators or drivers relied upon to put the tractors through their paces. Drivers taken from the service station of the Dayton & Trop Auto Co., some of whom never before had driven a tractor, handled the machines. Visiting farmers also took a hand, also a boy or two, and even women showed their ability.

The driving of the women was particularly interesting and impressive. Miss Bessie Geiger, the daughter of a farmer in the neighborhood, took the lead and made her turns and plowed her furrows, handling both tractors and plows with the skill and ease of a veteran. She was followed on a second tractor by Mrs. G. B. Ehrmann of Cleveland, a city woman, who before this day never had driven a motor car even, yet she handled her Fordson with ease.

Upon earth it had turned itself, the Fordson pulled a pulverizer and a disc drill, demonstrating its tractive power and speed on plowed ground, while following along the headlands was another Fordson drawing a great dray trailer, heavily loaded with observers.

The enthusiasm of the crowd of five or six hundred farmers reached its highest pitch, however, when, in response to a request that someone demonstrate the speed of the Fordson, E. H. Bryant, unhitching one of the plowing machines from its plow, drove it around the fields, cleated wheels and all, at a speed in excess of 15 m.p.h., great clouds of dirt being thrown high into the air.

Arrangements for the event, which were in the hands of C. E. Emerick, of the Dayton & Trop Auto Co., and of Rolla De Weese, upon whose farm the demonstration was given, were above criticism. Free buses ran from the Miami Hotel to the demonstration grounds. Lunch was served by church women of the neighborhood in a marquee erected on the grounds, and the comfort of visitors was looked after in every way. All afternoon the crowds came and went.

It is impossible to say how many individuals saw the demonstration whole or in part, but the number must have run into the hundreds during the day. Farmers from the vicinity were in the majority, of course, but there were many dealers who had come, some of them from considerable distances, and, most significant of all, there were a number of bankers from small towns, men who had been asked to finance a car of tractors.

More Fordson Distributers

DETROIT, May 18—Henry Ford & Son have appointed the following distributers for the Fordson tractor:

	Territory
Hippodrome Motor Co., Nashville	Tennessee
Universal Motor Co., Richmond	Virginia
De Tamble Tractor Co., Winston-Salem	North Carolina
Duttee W. Flint, Providence	New England
S. F. Bell, Spartanburg	So. Carolina
Bryant Tractor Co., Columbus	Ohio

Reorganize Minneapolis Motor Reserve

MINNEAPOLIS, May 20—Major W. R. Stephens of the Pence Automobile Co. has been chosen to reconstruct the Minnesota Motor Reserve, recently formed, and the Minnesota Service No. 1, into one organization, under jurisdiction of Adjutant General W. F. Rhinow. The reserve members will be uniformed and the organization will transport members of the Home Guard when required as well as Government and State officials on official business in the various districts.

This reserve is largely a dealers' proposition, as the units are made up of eight cars of the same make. Eight cars make a squad, two squads a platoon, two platoons a company. Each company will have a captain, two lieutenants, two sergeants and eight corporals. Each company will be enough to take care of a Home Guard company.

In Minneapolis there are four Home Guard companies and four motor corps companies. The Motor Reserve men will be sworn into service and will have drills and regular duty on occasions.

Le Roy Eschner, president of the Automobile Trade Association, has been named captain of the St. Paul division. Major Stephens will tour the State and form at least a squad in every town. Hennepin County has 400 members of the old reserve and Ramsey County 150 members.

Republic Producing 2000 a Month

ALMA, MICH., May 20—The monthly output of the Republic Motor Truck Co., Alma, Mich., is now at the rate of 2000, with an additional ten trucks daily for the Government.

Dealers Will Get All Fordson Tractor Plows

Ford to Distribute Balance of Michigan Allotment—Dealers Get Equipment

DETROIT, May 20—The completion of the distribution of Fordson tractors, to make up the 1000 originally apportioned to Michigan, will be undertaken directly by Henry Ford & Son, and the medium employed will be the Ford agents in the state. Henry Ford & Son explain that this method has been adopted to the end that the company may become familiar with tractor merchandising.

The price on future deliveries of tractors will be $800, f.o.b. Dearborn, with the understanding that the Ford agent may add $15 to this amount to cover freight and service. This price is to continue until the full apportionment of 1000 tractors has been exhausted.

Plow Situation Uncertain

The plow situation in Michigan is uncertain. The Oliver Chilled Plow Works is making a price of $140, f.o.b. Columbus, to meet the distribution in Ohio, and has made a deal with the Bryant Tractor Co., Columbus, Ohio, which definitely takes the plow out of the hands of the implement trade in that state. No such arrangement has as yet been perfected in Michigan, although the Oliver people appear to be disinclined to continue the introductory price of $125 which was made there originally.

E. T. Bryant, Dearborn, Mich., is trying to obtain the Michigan state agency on the Oliver plow and on other implements which have been especially designed to use with the Fordson tractor. He says that a contract was made covering the agency for the special disc harrow, made by the Roderick Lean Mfg. Co., Mansfield, Ohio, and that he is negotiating with the Emerson-Brantingham Co., Rockford, Ill., for the E-B seeder. At last advices he had closed none but the Mansfield deal.

100 Tractors Produced Daily

Shipment of the English order for Fordson tractors will have been completed within a few days, probably within a week, according to the company. Production at the present time is in the neighborhood of 100 tractors daily, about 70 of which are for domestic use. The states having priority are Michigan, Ohio, Iowa, Wisconsin, Kentucky, Massachusetts, Tennessee, Virginia, Nebraska and South Dakota.

As soon as the English order is completed the entire production will be apportioned among these states.

Two hundred tractors a day is the production mark set by Henry Ford & Son after June 1. Sorenson, engineer of the company, says that if nothing untoward happens there will be 50,000 Fordson tractors in the hands of farmers by Jan. 1, 1919.

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Noyes Takes Over the G. M. C. in New England

Also Gets Nova Scotia and New Brunswick—Will Continue to Distribute the Buick

BOSTON, May 20—On June 1 the Noyes-Buick Co. here will take over the G. M. C. truck branch. It is one of the largest deals ever put through here. It gives the Noyes-Buick Co. all New England, Nova Scotia and New Brunswick for the trucks. The company is the wholesale distributer of Buicks in New England, and because of the curtailment of cars the dealers were getting worried about meeting future conditions. M. E. Brackett, manager for the G. M. C. for the last few years, will direct the retail sales from the Commonwealth Avenue office owned by the branch, while Noyes will direct the wholesale from his headquarters on Lawton Street. The Buick organization is one of the biggest in New England.

29 Miles on K. B. C. Carbureter

CHICAGO, May 20—Twenty-one and a half miles on a gallon of gasoline and 29.05 miles on kerosene was the result obtained by a Ford car fitted with a K. B. C. carbureter in a test by the Chicago Automobile Club under sanction of the A. A. A. The car used was strictly a stock car during the gasoline tests, but used a hot-pin manifold in connection with the kerosene carbureter. Two Ford cylinder-head gaskets and a 3.32-in. steel gasket were used under the head when the kerosene tests were made, to lower the compression from 60 to about 53 lbs.

In the test for mileage on gasoline one full stop was made owing to traffic, the carbureter bowl finally running dry at 21.5. In tests for acceleration there was a difference of only 3.5 sec. in favor of gasoline. The trials were made from 5 to 30 m.p.h. In high gear the lowest car speed was about 6 m.p.h. for both gasoline and kerosene. In climbing the north end of Hubbard's hill, the K. B. C. carbureter showed a slight advantage over the stock Ford gasoline equipment, the time for the former being 33 sec. as compared with 34 for gasoline. On the south hill a slightly better performance was obtained on gasoline, but this was due mainly to ignition trouble which developed while the kerosene was being tested.

After the kerosene tests the engine head was removed, revealing practically a clean set of pistons, valves and plugs. The latter, especially, were in excellent shape. The kerosene carbureter was a stock model of the K. B. C. Carbureter Co., Detroit. The tests were in charge of E. A. Turner.

War Takes Tri-City Officers

DAVENPORT, IOWA, May 16—A new president and secretary of the Tri-City Automobile Trade Association have been made necessary because old officers have been called away by war duties. The new president is C. E. Alford, manager of the Overland Davenport Co. Former President H. J. Wolfer has been called to St. Paul to take charge of the business of his father, who is serving at Washington on the food administrator's staff. The former secretary, Lawrence L. Cook, has been called to the colors. Mr. Coughlin, proprietor of the Coughlin Sales Co., was made secretary.

Ross Sale Brought $37,500

DETROIT, May 18—The sale by auction of the equipment and material stocks of the Ross Automobile Co., held May 14, brought $37,500. The entire stock was sold in 630 separate parcels, no bids being offered when it was put up in bulk. There being parts sufficient to make ten complete cars they were arranged in car lots and offered in this manner. Each car brought $950; the regular price on the Ross eight at retail was $1,850. The entire stock was valued at approximately $80,000.

Overland Re-elects Officers and Directors

TOLEDO, May 20—At the annual stockholders' meeting of the Willys-Overland Co. the following directors and officers were re-elected respectively: John N. Willys, C. A. Earl, James E. Kepperley, Edwin B. Jackson, C. O. Miniger, Royal R. Scott, F. K. Dolbeer, Edward F. Swift and Rathbun Fuller; President, John N. Willys; first vice-president, C. A. Earl; vice-president in charge of sales, Edwin B. Jackson; vice-president in charge of production, C. O. Miniger; vice-president and counsel, James E. Kepperley; vice-president, Isaac Kinsey; secretary, Royal R. Scott; treasurer, F. K. Dolbeer.

U. of M. to Train U. S. Men

ANN ARBOR, MICH., May 17—The Government has accepted the University of Michigan's agreement to train 700 enlisted mechanics here in automobile repairing. The first 700 men will arrive June 15, and the training period will be 8 weeks. The second detachment of 700 will come Aug. 15, when the faculty hopes to have the new Union building available for both barracks and mess hall. A cantonment type of building will be erected immediately in which to train the mechanics in automobile chassis work.

General Electric Gets Bijur

NEW YORK, May 20—The General Electric Co. has purchased the Bijur Motor Lighting Co., and is, by the terms of purchase, paying $300,000 of new money into the company at once, and later will advance $200,000 additional whenever it is required. This total investment of $500,000 is to be represented by the first preferred stock. Joseph Bijur and his operating associates will continue with the new company. The manufacture of the Bijur line will be continued as heretofore, and enlarged to take care of new business.

Standardize Equipment For Fordson Tractors

Henry Ford & Son to Supervise Attachments for Belt-Power and Drawbar Work

COLUMBUS, OHIO, May 20—Henry Ford & Son will not directly market any of the farm equipment that goes with the Fordson tractor. Indirectly, however, the company will dictate what equipment the distributers of Fordson tractors shall handle.

It is of the utmost consequence to Henry Ford & Son that every tractor put out shall deliver maximum performance, both as respects quantity and quality of work. It is Ford's conviction that this can be assured only when specially designed machines are used with the Fordson and which shall have been given his personal approval. Every such machine built will be thoroughly tested out and only after it proves to meet every requirement will it receive official approval. Once that is conferred, however, that particular piece of equipment becomes standard Fordson equipment and every dealer who sells the Fordson tractor will sell that and no other.

Asked Others To Make Implements

Ford long ago requested certain manufacturers of farm operative equipment to design and build implements to be used exclusively with his tractor. Such was the reason behind the development of the No. 7 Oliver engine gang plow, designed and manufactured by the Oliver Chilled Plow Works, South Bend, Ind., and the engine double disc harrow, designed and built by the Roderick Lean Mfg. Co., Mansfield, Ohio. These machines already are being distributed by Fordson agents and other machines are to come. It is the expectation that within a reasonable time there will have been designed and put upon the market a complete assortment of drawbar and belt-power equipment for the Fordson tractor.

In turn it is understood that it shall be the policy of the manufacturers of such special equipment that it shall be sold exclusively through the Fordson dealers. This will operate to take the Fordson equipment out of the category of general farm implements and put it into a class by itself. Thus it will be sold as a specialized product and will not affect in any way the traditional policy of implement manufacturers toward their regular sales organization.

Inasmuch as Henry Ford & Son will have attained a productive capacity of 50,000 tractors a year by Jan. 1, 1919, and as the company expects to exceed even this production in the future, manufacturers of farm operative equipment see possibilities ahead of them, provided they can make something which will meet the approval of Ford. Already evidences of strenuous rivalry in this respect are apparent.

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War Board and Steel Men Talk Things Over

Steel Men Say They Believe They Can Supply Both War and Non-War Industries

WASHINGTON, May 18—A joint committee was appointed yesterday, comprising steel manufacturers and government officials, to investigate the actual steel conditions and to determine if there is a shortage of steel.

Threats of drastic government action, including suggestions for control of steel on the part of the War Industries Board, were met by members of the steel industry with expressions of confidence in the ability of the industry to meet all government requirements during the next year.

There is a sharp conflict of views between the steel makers and the government officials. Bernard M. Baruch, chairman of the War Industries Board, and J. L. Replogle, director of steel products, claim that the government steel needs are so great that a material expansion of steel plants and curtailment of steel shipments to less vital industries are necessary to prevent a crisis.

Members of the steel industry are optimistic and inclined to the belief that they can provide the necessary steel for the government and still meet the usual industrial demands.

Differences of opinion arose in yesterday's meeting as to the actual steel needs of the government, the steel men insisting that they be given the exact facts as to war needs. They stated that if they were given an actual budget means could be found to meet the requirements.

The War Industries Board estimates that sufficient steel to construct 12,000,000 tons of new shipping must be produced for the Shipping Board alone during the next year. The War and Navy demands will be much heavier than was expected, according to the government officials.

Baruch, it is stated, will bring the matter to the attention of President Wilson at the next war cabinet meeting, Wednesday, May 22, where the problem will be thrashed out.

The joint committee appointed yesterday to agree on steps to increase steel production and restrict non-war consumption of steel includes: Representing the steel trade—J. A. Farrell, president of the United States Steel Corp.; Eugene G. Grace, president of the Bethlehem Steel Co.; H. D. Dalton, president of the Pickands-Mather Co.; J. A. Topping; E. A. S. Clarke, president of the Lackawanna Steel Co. Representing the government—Alexander Logge, J. L. Replogle and Brig. Gen. Hugh L. Johnson.

At this meeting it was learned that many of the smaller producers are unable to operate their plants at the present government price of $65 per ton for steel. The conference discussed incidentally the proposed curtailment of the automobile and piano industries. The official trend is for a heavy cut. The piano industry is said to have several hundred million dollars worth of notes outstanding which, if the industry were suddenly suspended, would result in considerable financial disturbance.

Replogle, although without a definite budget of government needs, was insistent that there is a critical shortage in steel and pig iron. Reports from the steel districts show that during the last week there has been a large increase in the steel and pig iron output.

Production in pig iron now is at the rate of 40,000,000 gross tons per year, the best rate in eleven months, and showing a substantial gain over the average of the past two years. Many steel companies are now operating their blast furnaces advantageously and further increases in total production is expected through the blowing in of furnaces that have been idle for many months.

In the last week the Carnegie company blew in two additional furnaces and is operating 53 out of its total of 59, as compared with the operation of 29 furnaces in April. The company's pig iron production is now at 94 per cent of capacity.

Semi-finished steel production is now running close to 3,000,000 tons per month, which quantity is expected to be greater than government demands for any considerable length of time, and it is expected by July 1 the non-war industries will be able to secure supplies of semi-finished steel in good quantities. Steel ingot production is now at the rate of more than 45,000,000 tons per year, a considerable increase over March.

The iron and steel industries both are said to have gone on a 100 per cent production for war materials during the past week, turning down orders from the non-war industries. It is expected that this plan followed for 60 to 90 days will result in a supply of steel sufficiently large to meet all government demands so that a percentage can again be diverted to the less vital industries.

Changes in Price

NEW YORK, May 20—The following changes in price have been made during the past week:

	New Price	Old Price
Chevrolet, 8-cylinder, 4-5-pass...	$1550	$1385
Halladay, Model S, 3-pass.....	1375	1185
5-pass.....	1375	1150
Model R, 2-5-pass.....	1530	1385
Moline-Knight, Model C, 4-5-pass.	1750	1650
Model G, 4-7-pass.....	2375	1935
Nash, Model 682, 7-pass.....	*1545	
Models 681, 683, 2-5-pass..	1395	1295
Models 684, 685, coupé and sedan	2085	1985
Westcott, Model S-18, 4-pass.....	1990	1890
5-pass.....	2290	1940
7-pass.....	2090	1940
coupé and sedan	2890	2790

*New model.

Columbia 2-Ton Truck Advances

PONTIAC, MICH., May 18—After June 1 the price of the Columbia 2-ton truck chassis will be $2,275. It is now $1,990.

Sales Conditions in Chicago Running Fair

Dealers Could Sell More Cars If They Could Get Them—Good Used Cars Are Higher

CHICAGO, May 18—A review of the trade situation in this city to-day reveals the following principal facts:

1—Dealers could sell many more cars if they could get them.

2—Transportation from factory to dealer not the serious problem that it was, because most of them can drive through if they can get the cars.

3—The fact that factories cannot turn out cars in sufficient quantities to supply the demand is the cause of the trouble.

4—Practically all standard cars are over-sold in this territory. Some of the dealers who have cars not so well known cannot sell them as rapidly as they can get them.

5—Used cars are high and are going higher. This applies only to such as have real road service in them. The junk is lower, and more of it is being junked than ever before.

6—The Liberty Loan drive had a distinct depressing effect, particularly during the campaign. Sales have recovered since with the coming of good weather.

7—Crop conditions in this territory were not particularly good last year, but crop prices were high, so that the final effect was about a stand-off.

8—As compared with last year the demand is less. In most instances, the figure given is around 75 per cent of last year's demand.

9—The demand for trucks is good, but not particularly good. This territory has not profited by war orders to the extent that eastern territory has.

10—The possibilities for tractor sales are practically unlimited. The amount of business done will depend wholly on the number of tractors which can be produced.

New Era Gets Parradee Bumper

GRAND RAPIDS, MICH., May 17—The New Era Spring & Specialty Co., of which Smalley Daniels is president, has recently purchased the plans, manufacturing rights, machinery and equipment of the Parradee Spring Auto Bumper, and has added this to its other manufacturing business. Edward Parradee, the bumper inventor, will superintend their construction.

Landon Airplane Production Head

WASHINGTON, May 20—Archer A. Landon of Buffalo was to-day appointed director of the Division of Production of the Aircraft Board, which is headed by John D. Ryan. Mr. Landon is vice-president of the American Radiator Co., and was assistant chairman of the Aircraft Board under Howard E. Coffin. "It is felt," stated Mr. Ryan to-day, "that Mr. Landon's wide experience and great ability will materially advance the production of aircraft."

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Schofield Tractor to Be Made in Ten Zones

Parent Company Licensing Other Companies to Produce in Number of Territories

KANSAS CITY, May 22—The Automotive Tractor Corp., a $250,000 company owning the patent and heretofore manufacturing the Schofield tractor, is making contracts for rights in ten zones over the United States. Zone contractors will manufacture the machines and distribute in their territory. Each zone man, however, is required to put into his territory at various centers a prescribed number of demonstrators, the number being calculated by the home company on the basis of the number of farms in the zone. The zone companies are also under contract to manufacture up to a definite standard, and to distribute a certain number of machines each year. The home company takes the position that there should be a tractor on 160-acre farms.

Zone No. 1 has been contracted to the Automotive Tractor Co., and includes five states of the Atlantic Coast, with headquarters at Frederick, Md. Hesper E. Cline, a banker of Frederick, is president of the company; Dr. Geo. M. Smith, the treasurer, and Thomas E. Cling, secretary. This company has purchased a factory which heretofore has been engaged in hardware manufacturing at Frederick, and is adding to the buildings and equipment.

There are two acres of factory buildings and an additional 7½ acres for demonstrating. The first demonstration was made May 2, 1918, 2500 farmers witnessing it. This factory is already equipped to make the Schofield tractor, having one building two stories 200 x 60 ft., a foundry 60 x 75, and other minor shop and storage facilities. The company has material on hand to make 100 tractors, and can turn them out in large numbers this summer.

The home company has four zones in northern and eastern territory practically contracted for, where there are manufacturing facilities under control of zone people so that manufacturing can be started within the next month or so.

The Kansas City zone will probably be contracted within a few days; the company negotiating has 27 acres of ground, and has facilities with which 10,000 of the tractors can be made within the year. This Kansas City zone company probably will be delivering 1000 machines a month by August—and materially help the supply for the fall plowing in the wheat territory.

All the contracts provide that the distribution shall be through dealers; any sales made by demonstrators representing the zone contractors must be cleared through dealers.

The home company has a very definite notion as to the development of distribution of tractors. It is—developed of course in connection with its own device—that implement dealers, blacksmiths and automobile dealers ought to form a consolidated company, or ought to have working agreements with reference to certain articles which one or more handle. The company has already effected several consolidations, the implement man, the blacksmith and the automobile dealer, who has been interested in the Schofield tractor, forming a company.

A new plan of co-operation is being worked out, to be utilized in the distribution of the Schofield tractor, whereby the acquaintance of the implement man with the farmer and his problems, the equipment and ability of the blacksmith in making repairs on farm machinery, and in sharpening plows, and the financial ability of the automobile man in selling for cash, and the automobile man's facilities in getting, selling and giving service on his cars, will all be brought together.

The company is getting together a force of engineers and sales managers, who will act in an advisory capacity and as general directors of the zone contractors.

Eleven States Have Fordsons

DETROIT, May 20—Up to the end of the first week in May Fordson tractors have been shipped to the following states: North and South Dakota, Nebraska, Iowa, Tennessee, Wisconsin, Michigan. Ohio, Massachusetts, Kentucky and Virginia. State contract sales are now beginning to subordinate to the trade through the regular agents or agencies for the tractor, who find the farmers ready to buy on sight. There is no letting up in demand for the tractor.

Toledo Cartage Men Organize

TOLEDO, May 20—Cartage men of this city have formed what is to be known as the Toledo Cartage Men's Association. The purpose of the association is better co-operation among members in handling not only long-distance freight but in all matters pertaining to the cartage business in Toledo. The officers of the association are: President, James Manon; vice-president, W. C. Rathbun; secretary, C. M. Harrison; assistant secretary, James C. Fowler; treasurer, C. Gernheiser.

Grant Reopens Plant at Findlay

FINDLAY, OHIO. May 20—The Grant Motor Car Corp., Cleveland, will reoccupy its vacated plants in this city at once and begin the manufacture of munitions for the Government, contract for which has just been received. The plant will be placed in readiness as soon as possible, the machinery and equipment for same being en route now. It is expected that work will be started within a week. Eight hundred men will be employed at once.

Cars Indispensable to Mobilize Farm Labor

Missouri Farmers Could Not Get Along Without Them—Railroads Inadequate

KANSAS CITY, May 22—The necessity of motor cars for transporting farm labor this summer and fall is beginning to be realized in Kansas and other wheat states. A few weeks ago a mention of motor cars in connection with moving labor was scoffed at, the response being that railroads and the farmers themselves would take care of transportation.

Now, however, frantic efforts have mobilized the motor owners for definite help. The farmer will be too busy on actual production to send to the railroad station for workers, and there will be innumerable situations where labor can be transported across the country at a great saving in time by automobiles. The local Councils of Defense and local representatives of the State Farm Labor Direction are generally seeking now to organize motor volunteers for handling the labor. These volunteers will also be available for taking repair parts and supplying to the farms during the busy corn cultivating and harvest season.

Scores of small parties of three to six are being organized in cities, to spend their vacations of two weeks to a month or so in automobiles with camping outfits doing work on farms.

One of the hardest labor situations to handle is in certain districts of the West where house accommodations are inadequate, but where outside help has to be secured to care for crops.

Under the old conditions labor seemed willing to rough it, but it is considered inadvisable to send some of the city volunteer workers by railroad to these places. Such conditions can be met adequately by camping parties.

Plan Texas Show Oct. 14-27

DALLAS, May 20—The seventh annual Texas automobile show held in connection with the Texas State Fair will be held this year from Oct. 14 to 27 inclusive. These dates were announced this week. This year's show will be four days shorter than usual on account of the war. Automobile dealers who plan to exhibit their cars will meet soon to arrange for the exposition. The closed car salon which has been held each spring will not be held this year.

Frederick Remsen Hutton

NEW YORK, May 20—Frederick Remsen Hutton, Emeritus Professor of Mechanical Engineering in Columbia University and a prominent and active member of the Society of Automotive Engineers since 1908, died at his home, 257 West Eighty-sixth Street, in his 65th year, on Tuesday, May 14.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Frank L. Grener, recently territorial representative for the Buick, Overland cars and Inland piston rings, has been named wholesale manager for the Oldsmobile distributer in St. Louis, the De Luxe Automobile Co.

Fred J. Miner has been appointed district representative of the Duplex Truck Co., Lansing. His territory consists of southeastern states.

W. C. Boulcott has been made advertising manager of the Dayton Engineering Laboratory Co., Dayton.

E. M. Mark, who has been associated with the Oakland North Pacific Co. for the past 4 years, has severed his connection with the Oakland concern to take over the distribution in the Northwest of the Elgin Six. He will head the Seattle Motor Car Corp. and branch offices will be opened in Portland, Spokane and San Francisco.

R. S. Higgins has given up his position as sales manager with John Millen & Son, Montreal, Canada, in order to enlist in the ranks of the Tank Battalion recruited in Montreal.

A. J. Brechell has succeeded Custer Ramsby as manager of the Studebaker Corp. branch house at Des Moines. He is from the South Bend office. Ramsby has gone to Detroit.

N. E. Wahlberg, chief engineer of the Nash Motors Co., Kenosha, on May 15 received notification of his appointment as a major in the quartermaster's department of the United States army and orders to report at once in Washington. It is expected that Maj. Wahlberg will go overseas within a fortnight on an important mission in behalf of the war department.

Bert M. Pettit, advertising manager of the J. I. Case Plow Works, Racine, has been elected secretary and a director of the Wallis Tractor Co., Racine, the stock of which is controlled by the owners of the plow company.

E. M. Ford, sales manager of the National Coil Co., Lansing, since the fall of 1915, has resigned to accept the same position with the Webster Electric Co., Racine, Wis., manufacturer of ignition devices for internal combustion engines.

R. F. Dyer, formerly assistant sales manager of the Aluminum Castings Co., Detroit, has resigned to become sales manager of the Parrish Mfg. Co. **Charles B. Bohm**, also formerly with the Aluminum Castings Co., has left the company to enter business for himself. His company is known as Charles B. Bohm Foundry Co. and will make aluminum and bronze castings.

Leopold E. Mosiman has been appointed production manager of the Traffic Motor Truck Corp., St. Louis. He was formerly superintendent of the Chevrolet branch plant in St. Louis.

A. W. Bolton has opened offices at 180 North Dearborn Street, Chicago, as manufacturers' representative. He has recently added the account of the Imperial Oil Co., St. Louis.

A. H. Davis, formerly of the Franklin Motor Car Co. of New York City, is now connected with the Franklin Motor Car Co. of Rochester, N. Y., as salesman.

Victor Clark Parker, former manager of the technical department of the Buick Motor Co., Flint, is now a major in charge of the industrial headquarters of the motor mechanics regiments of the Aviation Section of the Signal Corps at Camp Greene.

H. R. Russon, former branch manager of the Dayton branch of the Goodyear Tire & Rubber Co., Akron, has become a member of the manufacturers' sales organization of the company at the Detroit branch. He will specialize in airplane accessories.

George Beason has been appointed sales manager of the newly organized W. D. Block Motor Co., Oakland and Marmon distributer.

W. B. Kanis, former treasurer and general manager of the New Era Spring & Specialty Co., Grand Rapids, has been appointed sales representative of the Advance Automobile Accessories Corp., Chicago, and is handling cork inserts manufactured by this company in Michigan, Ohio and Indiana.

W. T. Scarritt, formerly White agent at Kansas City, has been made sales manager of the Western Trailer Co. and **John B. Cannon**, formerly with the Cadillac agency at Pittsburgh, Pa., is now traveling the territory as salesman.

A. H. Howard, formerly with the Interstate Sales Corp., Kansas City, has been made sales manager of the Standard Motors Corp., Cole and Empire distributers in Kansas City territory.

New Offices for Havoline Oil

NEW YORK, May 20—New offices have just been opened by the Indian Refining Co., manufacturers of Havoline oil, at 244 Madison Avenue. The company has taken three floors, comprising some 25,000 sq. ft. of space. The eighth floor is occupied by the general offices and sales forces and the seventh and ninth floors house the accounting and other departments.

Ables-Lally to Sell Power-Maker

NEW YORK, May 21—The Ables-Lally Light Corp., of this city, Newark, N. J., and Boston, will distribute the "Power Maker" a machine having rollers driven by the rear wheels of a car and in turn driving a pulley from which power is derived. This mechanism, which is manufactured by the Versal Products Mfg. Co., was formerly styled Versal Mobilpower converter. The list price will be $37.50 and will also be sold by dealers in agricultural implements and farm machinery as well as automobile distributers.

Trade in New York Is Running on Even Keel

No Great Boom and No Great Slump—Stock Market a Barometer—Freight Has Relaxed

NEW YORK, May 20—Trade in this city is running along about as it has been for several weeks. As a general rule it is not quite so good as last year, although some of the dealers in the popular-priced cars report sales far ahead of a year ago.

Deliveries, however, are not so good. Most of the dealers are driving cars overland, although there seems to be a pick-up in the freight situation. It is now possible to ship cars into the New York area. In some cases permits are necessary. And the time of shipment is fair. Cars are coming through from Ohio and the Central West in two weeks by regular freight.

During the Liberty Loan there was a noticeable slump, and the present Red Cross drive is expected to have an effect. The New York trade is said by the old-timers to be especially susceptible to psychologic conditions. When the stock market runs up million-share days car sales pick up, and when the market lags car sales lag. Also, big drives on the Western front have a similarly depressing effect.

The used-car market is in good condition. Few dealers figure to make any profit on their used cars, although most of them say they are breaking even. Cleaner sales of new cars are reported with the greater demand for used cars. Cutting-Larson carried 385 new and 100 used cars throughout the winter, and has its entire stock just about cleaned out. Its used-car stock is lower than it has been in four years.

All along the row the demand is said to be ahead of deliveries. Labor shortage is a great handicap.

Motor Car Securities Quotations

	Bid	Asked
*Ajax Rubber Co.	54	64
*J. I. Case T. M. Co., pfd.	85	89
Chalmers Motor Co., com.	6	8
Chalmers Motor Co., pfd.	30	40
*Chandler Motor Co.	82	83
Chevrolet Motor Co.	124	127
*Fisher Body Corp., com.	32	35
*Fisher Body Corp., pfd.	82	87
Fisk Rubber Co., com.	49	52
Fisk Rubber Co., 1st pfd.	98	103
Fisk Rubber Co., 2nd pfd.	70	75
Firestone Tire & Rub. Co., com.	91	94
Firestone Tire & Rub. Co., pfd.	94	96
*General Motors Co., com.	124	127
*General Motors Co., pfd.	79	81
*B. F. Goodrich Co., com.	44	45
*B. F. Goodrich Co., pfd.	95	100
Goodyear Tire Rub. Co., com.	142	146
Goodyear Tire & Rub. Co., pfd.	96	98
Grant Motor Car Corp.	2½	3½
Hupp Motor Car Corp., com.	2¾	3¼
Hupp Motor Car Corp., pfd.	79	85
International Motor Co., com.	22	25
International Motor Co., 1st pfd.	50	56
International Motor Co., 2d pfd.	27	32
*Kelly-Springfield Tire Co., com.	46	47
*Kelly-Springfield T. Co., 1st pfd.	76	88

	Bid	Asked
*Lee Rubber & Tire Corp.	17	17½
*Maxwell Motor Co., Inc., com.	26	28
*Maxwell M. Co., Inc., 1st pfd.	54	56
*Maxwell M. Co., Inc., 2nd pfd.	19	21
Miller Rubber Co., com.	101	104
Miller Rubber Co., pfd.	94	96
Packard Motor Car Co., com.	105	112
Packard Motor Car Co., pfd.	91	..
Paige-Detroit Motor Car Co.	16	18
Peerless Truck & Motor Corp.	13	16
Portage Rubber Co., com.	104	108
†Reo Motor Car Co.	14	16
*Saxon Motor Car Corp.	8¼	9¼
Standard Motor Construction Co.	11	13
Standard Parts Co.	..	69
*Stewart-Warner Speed. Corp.	57	59
*Studebaker Corp., com.	41	42
*Studebaker Corp., pfd.	75	90
United Motors Corp.	24	25
*U. S. Rubber Co., com.	58	59
*U. S. Rubber Co., pfd.	104	106
*White Motor Co.	41	42
*Willys-Overland Co., com.	19	20
*Willys-Overland Co., pfd.	80	82

*At close May 18. Listed New York Stock Exchange. †Par value $10.

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License All Makers, Dealers and Jobbers of Farm Equipment

Presidential Proclamation to Conserve Food Supplies Includes Tractors and Attachments

WASHINGTON, May 20—Manufacturers, jobbers and dealers of tractors, trucks and trailers and all other farm implements and machinery will be required to work under license after June 20, 1918. The license will be issued by the United States Food Administration. The plan is to prevent undue control of prices both of food and of food-producing machinery. It is further aimed to prevent German influence from controlling the prices or quantities of food in this country. President Wilson has issued a proclamation instructing the Department of Agriculture to place the importation, manufacture, storage or distribution of farm equipment under license.

An act of Congress approved by the President Aug. 10, 1917, for encouragement of production, conservation of supply and control of distribution of food products grants the President the power to license the importation, manufacture, storage, mining or distribution of farm implements, etc., and authorizes him to place these businesses under license or other regulations as he sees fit.

The proclamation states that all individuals, partnerships, associations and corporations engaged in the business of importing, manufacturing, storing or distributing farm equipment are required to secure licenses on or before June 20, 1918. The Secretary of Agriculture will carry into effect the provisions of the act and proclamation. Applications for licenses must be made to the Law Department, License Division, United States Food Administration, Washington, D. C.

The plan is designed to prevent scarcity of food, monopolization, hoarding, injurious speculation, manipulation and private control of the food supplies during the war.

The general regulations governing the licenses as outlined by President Wilson include the following:

The term "farm equipment," wherever mentioned in these regulations, shall be deemed to mean certain necessaries, including attachments and repair parts thereof, required for farm use in the actual production of foods and feeds, as follows: Binders, boilers, brooders, bunchers, carriers, carts, cleaners, covers, crushers, cultivators, diggers, distributors, drills, elevators, evaporators, fencing, forges, forks, fountains, gates, grades, grinders, grindstones, harrows, harvesters, headers, hillers, hitches, hullers, huskers, incubators, jacks, listers, loaders, markers, milkers, mills, mowers, pens, pickers, planters, plows, powers, presses, pullers, pulleys, pulverizers, pumps, racks, rakes, rollers, scales, seeders, separators, shellers, shredders, silos, sleds, slings, sorters, sowers, sprayers, spreaders, stalls, stanchions, tanks, tedders, testers, threshers, towers, tractors, trailers, troughs, trucks, wagons, weeders, weighers, windmills and all other tools, utensils, implements and machinery required for farm use in the actual production of foods and feeds.

Licenses required, pursuant to the proclamation of the President of May 14, 1918, to engage in or carry on any business of importation, manufacture, storage, or distribution of any farm equipment, shall be prepared by the Law Department, License Division, United States Food Administration shall have the signature of the Secretary of Agriculture affixed, and shall not be transferable.

Each licensee shall give to any representative designated for the purpose by the Secretary of Agriculture, whenever the said representative shall so require, any information concerning the business of the licensee. Such information shall be in writing or otherwise, and with or without oath or affirmation, as the said representative may require. Written report, when requested by said representative, shall be made on blanks furnished by the Department of Agriculture, giving complete information regarding or affecting transactions in any farm equipment, which is imported, manufactured, packed, purchased, contracted for, received, sold, stored, shipped, or otherwise handled, distributed, or dealt with, by the licensee, or which is on hand, in the possession, or under the control, of the licensee, and any other information concerning the business of the licensee that such representative may require from time to time.

Each licensee shall, during ordinary business hours, permit any representative of the Secretary of Agriculture, designated by him for the purpose, to enter the place of business of such licensee, and inspect any and all property stored or held in possession or under the control of the licensee and all records of the licensee. All necessary facilities for such inspection shall be extended to the said representative by the licensee and his agents and servants. Said representative shall be the President's duly authorized agent for the purpose of this regulation.

Each licensee shall keep such records of his business as shall make practicable the verification of all information given by him under these regulations.

No agent or employee of the United States shall without the consent of the licensee concerned divulge or make known in any manner, while he is such agent or employee or thereafter, except to such other agents or employees of the United States as may be required to have such knowledge in the regular course of their official duties, or except in so far as he may be directed by the Secretary of Agriculture or by a court of competent jurisdiction, any facts or information regarding the business of any licensee which may come to the knowledge of such agent or employee through any examination or inspection of the business or accounts of the licensee, or through any information by the licensee pursuant to these regulations.

A licensee shall not import, manufacture, store, distribute, sell or otherwise handle any farm equipment on any unjust, exorbitant, unreasonable or discriminatory and unfair commission, profit, or storage charge.

A licensee shall not resell any farm equipment, within the same trade, without reasonable justification. Any such resale without reasonable justification, especially if tending to result in a higher market price to the retailer or consumer, will be deemed to be a wasteful practice.

A licensee shall not buy, contract for, sell, store, or otherwise handle or deal in any farm equipment for the purpose of unreasonably increasing the price or restricting the supply of any such commodity, or of monopolizing, or attempting to monopolize, either locally or generally, any such commodity.

A licensee shall not knowingly commit waste or willfully permit preventable deterioration in connection with the production, importation, manufacture, storage, distribution, or sale of any farm equipment.

Each licensee shall report in writing to the Secretary of Agriculture, within ten days thereafter, any change of address, or any change in the management, control, ownership, or character of the business of the licensee.

A licensee shall not, without the express sanction of the Secretary of Agriculture, sell any farm equipment to any person engaged in the business of selling or utilizing such commodity or any derivative therefrom, if the licensee has knowledge that such person, after this regulation has become effective, has violated the provisions of the aforesaid Act of Congress, approved August 10, 1917, by making an unjust or unreasonable rate or charge in selling or otherwise handling or dealing in such commodity or by holding, contracting for, or arranging for a quantity thereof in excess of the reasonable requirements of his business for use or sale by him for a reasonable time.

A licensee shall not make any misleading representation which tends to enhance the price of any farm equipment. The issuing or making public of market quotations, or any statement to any person regarding the price at which any farm equipment is being sold, which quotations or statement cannot be verified either from the records of such licensee or from the records of other licensees, shall be considered as making such a misleading representation.

The words used in these regulations shall be construed to import the singular or the plural, as the case demands. The word "person," wherever used in these regulations, shall include individuals, partnerships, associations and corporations.

The general rules and regulations as to food commodities, effective November 1, 1917, as amended, under the Food Control Act, shall not apply to farm equipment.

In accordance with my proclamation of May 14, 1918, and pursuant to the authority conferred on me by the Act of Congress, approved August 10, 1917, entitled "An Act to provide further for the national security and defense by encouraging the production, conserving the supply, and controlling the distribution of food products and fuel" the foregoing regulations are hereby prescribed and promulgated to govern persons licensed to engage in and carry on any business of importation, manufacture, storage, or distribution of farm equipment.

Done in the District of Columbia this 14th day of May, 1918.

(Signed) WOODROW WILSON,
President.

United to Acquire Perlman Assets

NEW YORK, May 20—The United Motors Corp., which already controls the Perlman Rim Corp. through stock ownership, is to acquire the assets and properties of the company, which will be made a United Motors division. Action authorizing the transfer of the assets and property was taken at a meeting of the Perlman Rim Corp. on May 13. The change presages no alteration in the conduct or productions of the company and is in line with a similar change which was made several months ago, when the Hyatt Roller Bearing Co.'s assets and property were transferred to the United.

Schools for Army Mechanics

KANSAS CITY, May 18—The two big automobile and tractor training schools in this city, the Sweeney and the Rahe, are to be used by the Government in training 5000 men from the selected army this summer as motor mechanics. The men will come in groups of 1500 and be divided between the two schools. The course will take two months. The first contingent is already going through the school. Most of them are from Iowa.

Five More in M. A. M. A.

NEW YORK, May 20—Five new members were admitted to the Motor and Accessory Manufacturers' Association at the meeting which was held last week. These are:

Indiana Lamp Co.....Connersville, Ind.
Teetor-Hartley Motor Corp.Hagerstown, Md.
Mayo Radiator Co.....New York City
John W. Brown Mfg. Co.....Columbus, O.
G. & O. Mfg. Co.....New Haven, Conn.

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Detroit Dealers Say Car Demand Is Steady

Expect Increasing Interest as Weather Improves—Truck Sales Better

DETROIT, May 18—The demand for cars in this territory is apparently good and most dealers feel quite optimistic about the future. They believe the demand will naturally increase as the weather improves, but due to the shortage of cars they feel that they will not be able to obtain sufficient cars to supply their requirements.

Used cars are in greater demand than ever before and higher prices are being secured for them. The increased demand, however, is expected throughout the cities rather than in the rural districts. The wheat acreage this year being much below normal is somewhat discouraging. This, with the fact that many farmers' sons, on whom the farmers have depended to drive their cars, have departed for military service, reduces the field of sales possibilities in the rural communities.

As compared with last year, motor truck and delivery wagon sales are 25 per cent less but are steadily picking up. Passenger car sales, however, are 25 per cent better than last year's figures. During May, 1917, the Overland distributer sold $61,000 worth of cars. This year to date the company has already done $60,000 worth of business, pointing to a remarkable increase for this month.

Outgoing freight from the factories is moving more freely. Most of the plants state they are obtaining a great percentage of the cars they need. Less than 25 per cent of the production of Paige is driven away; part of this goes by water. Shipments from the Packard plant to the East are sent to Buffalo by boat, and there the cars are unloaded and called for by distributers, who drive them to Pittsburgh and New York. Cadillac sends 18 per cent of its production by water; only 2 per cent is entirely overland.

Lozier Reorganizes Service

DETROIT, May 20—The Lozier Motor Co. has made a number of changes in its service organization and has formed an advisory division in charge of W. S. Grant, to assist owners in the proper maintenance of their cars. B. B. Denyes has been placed in charge of the overhaul department.

Fickling Enameling Reorganized

LONG ISLAND CITY, N. Y., May 21—The Fickling Enameling Co. has passed out of existence and has been succeeded by the Enameling & Stamping Corp., organized with a capital of $200,000. W. Irvine Fickling will be president of the new company and H. F. Holbrook, formerly associated with the Holbrook Co., manufacturer of bodies, will be secretary and treasurer.

Chicago to Conserve "Service"

CHICAGO, May 20—The Chicago Automobile Trade Association is contemplating taking steps toward lessening unnecessary service to owners, as urged by the National Automobile Dealers' Association at St. Louis last week. It is probable that a meeting of dealers will be held within a few days to adopt a formal program. Meanwhile individual dealers are asked to urge owners to perform such operations as greasing and oiling, etc., that do not require expert services.

Kaufmann-Morris Reorganized

NEW YORK, May 21—The Kaufmann-Morris Co., New York distributer of Nash cars and trucks, Premier and F. I. A. T. cars, has been reorganized, following the resignation of George R. Morris from the company. Mr. Kaufmann continues as president and F. C. Stowers general manager.

Lewis Resigns from Timken Axle

DETROIT, May 16—Eugene W. Lewis, who has been vice-president and a director of the Timken-Detroit Axle Co., has resigned in order to devote his entire time to government war activities. As a result of his resignation the following changes in personnel of the company have taken place: A. R. Domery, vice-president, is now also general manager; Frederick C. Gilbert, secretary, has been made vice-president in charge of sales and advertising; C. W. Dickerson, who is treasurer, has been given the added responsibility of secretary of the company.

Peace?

(*Continued from page* 28)

one took them seriously until the butchering army set forth across Belgium on its career of "Weltmacht." No one ever thought it would happen. It was unbelievable. And when it happened it was too late to teach the world what the war meant. But we MUST teach these things else we do not know what we are fighting for—and if we don't know what we're fighting for *we may be tempted by the coming German-made talk of "peace."*

The only peace we can have is the one whose terms you know. Those terms can be secured only when the German army is crushed, and this crushing will take millions of men and possibly years of time.

We have said for ourselves: "World peace or ruin," and by that we mean we shall fight until the German ideals of power and world domination are crushed into the dust—across the Rhine.

So, when you hear men to-day blather and simper about peace, fairly shriek at them to get sense into their heads, for our only way to world peace is to GET ON WITH THE WAR.

Another Slight Rise In Prices of Tires

Goodrich and Fisk Add 2½ to 10% But Are Alone—Expect Cotton Shortage

NEW YORK, May 20—Another slight increase in tire prices has been made by the B. F. Goodrich Co. and the Fisk Rubber Co.; Goodrich has increased the price of fabric tires of all sizes from 2 to 3 per cent, and Fisk has made increases varying from 2½ per cent to 10 per cent, according to size. Although it is freely predicted that other companies will make further increases, none of them has, as yet, done so. Kelly-Springfield, which did not increase at the time other companies did so, about the third week in April, has raised its lists 10 per cent, effective at once.

The increases are ascribed largely to a shortage of the proper grade of cotton for fabric and to the rising cost of labor. It is stated that whereas the tire manufacturers generally require 80,000 bales of Sea Island cotton for a normal year's output, insect pests and other causes have reduced this year's possible supply to about 60,000 bales. Of this the Government has requisitioned probably 50,000 bales, leaving only a very small amount for tire manufacturers. The exact effect on the industry cannot be estimated, though the suggestion is offered from some quarters that this may bring about the production of unguaranteed tires. Some factories are at present working from day to day on the cotton they can receive, though some of the others are fairly well stocked.

The rubber situation is not causing any apprehension. Imports have been coming in freely during the last few weeks, and all the rubber that was afloat on May 8 will be admitted without restriction. In view of reduced automobile production, it is thought that there will be no shortage of rubber for tires.

Continental Truck to Start

SUPERIOR, WIS., May 20—The Continental Motor Truck Co., Superior, Wis., which has been inactive for nearly a year, has completed arrangements for the final equipment of its new shop building and expects to be engaged in a regular production of commercial cars within 60 days. The company was organized in 1913 by Dr. J. G. Barnesdale, designer of the truck, and occupied leased quarters pending the erection of a new factory. For the present the company will devote its attention to a 3-ton type.

More Room for Lavine

MILWAUKEE, May 20—The Lavine Gear Co., Racine, has acquired a large tract of land near the north limits of Milwaukee, and intends to erect a complete manufacturing group costing about $400,000.

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Mulford in Frontenac Winner at Uniontown

Takes Liberty Sweepstakes Final at 97 M. P. H.— Oldfield Wins Match Race

UNIONTOWN, May 16—Ralph Mulford, driving a Frontenac, won the feature event at the speedway here to-day, winning his heat in the Liberty Sweepstakes at 95.3 m.p.h. and the final at 97 m.p.h. Eddie Hearne, in another Frontenac, was second, and Tommy Milton in a Duesenberg third. The race was run in five heats of 27 miles each. Barney Oldfield, driving his "Submarine," won a match of 5 laps, or 5⅝ miles, from Louis Chevrolet in a Frontenac in 3:18.51, which is at the rate of 102 m.p.h. Approximately 18,000 people saw the races, the attendance being considerably better than at the last meet on Thanksgiving Day in 1916.

Oldfield and Mulford shared honors in the day's racing. Mulford, by winning the final heat, gets his name inscribed on the $3,000 Universal Trophy cup, which becomes the permanent property of the driver who wins it three times. Billy Taylor, Louis Chevrolet and Ralph Mulford so far have won each one leg of the cup, which is competed for but once a year.

The match race between Oldfield and Chevrolet went five laps. Oldfield piloted his "Golden Submarine," but the shining armor had been removed as well as the tail.

The Liberty Sweepstakes was split into five heats, the winner of each of the first four heats entering the final. Each heat was 24 laps, or 27 miles, the Uniontown track being a mile and an eighth.

The "death curve" on the southwest turn figured in two super-thrilling accidents, in one of which two flagmen were injured.

Ira Vail was coming out of the turn at a tremendous speed in the second heat of the Sweepstakes when an upper front wheel spindle broke. The wheel hung by a thread but dropped at an angle of 45 deg., the upper portion of the wheel falling over against the hood of the Hudson. The car swerved to the upper guard rail, with the plucky driver displaying consummate nerve and skill in handling his mount. The field of cars was well bunched and the Hudson started down toward the bottom of the track in what appeared to be an inevitable piling up of some half dozen cars running at not more than a car length apart. Vail, however, got his mount under control and brought it into his pits. Neither he nor his mechanician was hurt with the exception of slight scratches.

In almost the same spot in which Vail's accident occurred Red Fetterman, driving a Peerless, blew a tire. Here again the cars were pretty well bunched. The Peerless smashed into the upper guard rail, but Fetterman regained control of his machine and kept the car hugging the guard rail along the sharp turn. He brought it to a stop and against the guard rail and held it there until the heat was over. Ray Coldren of Uniontown and J. W. Barnes of Pittsburgh, flagmen, were struck by the Peerless, however, and each sustained broken arms. Barnes may have been internally injured.

The summaries:

MATCH RACE
(5 laps, 5⅝ miles)

Driver and Car	Time	M.P.H.
Barney Oldfield, Submarine...	3:18.51	102
Louis Chevrolet, Frontenac...	3:18.72	101.9

LIBERTY SWEEPSTAKES

First Heat

Driver and Car	Time	M.P.H.
Tommy Milton, Duesenberg..	15:59.52	101.1
Ralph Mulford, Frontenac....	17:51.69	91
I. P. Fetterman, Peerless.....	18:21.1	90

Second Heat

Driver and Car	Time	M.P.H.
Ralph Mulford, Frontenac....	16:37.09	95.3
Barney Oldfield, Submarine...	17:22.3	93.1
I. P. Fetterman, Peerless....	17:23.75	93
Omar Toft, Miller.....	17:33.89	92.12

Third Heat

Driver and Car	Time	M.P.H.
Eddie Hearne, Frontenac.....	16:49.64	94.85
Fred McCarthy, Hudson.....	17:51.73	91.20
Omar Toft, Miller.....	17:52.13	91.10

Fourth Heat

Driver and Car	Time	M.P.H.
Louis Chevrolet, Frontenac...	17:03.68	93.4
Fred McCarthy, Hudson.....	17:40.82	91.5
Geo. B. Gardner, Hudson.....	18:29.75	87.5

Fifth Heat

Driver and Car	Time	M.P.H.
Ralph Mulford, Frontenac....	16:42.82	97
Eddie Hearne, Frontenac.....	16:58.77	95
Tommy Milton, Duesenberg..	17:35.18	93

TERMS STRICTLY CASH

Effective May First, 1918

As recommended and endorsed by the War Service Committee of the Automobile Dealers' Association of the United States and unanimously adopted by the Tri-City Automobile Trade Association.

The Tri-City Automobile Trade Association recommends the following schedule of minimum charges:

LABOR RATES

Mechanics' labor per hour	$ 1.00
Overtime and holidays per hour	1.50

STORAGE will be charged on cars left in our garage 24 hours after owner has been notified that work is completed.

STORAGE

Storage 1 to 3 hours	.35
Storage 3 to 6 hours	.50
Storage 6 to 12 hours	.75
Storage 12 to 24 hours	1.00
Storage by the week, if paid in advance	4.00
Storage by month, if paid in advance, summer (April to Sept.)	8.00
Storage by month, if paid in advance, winter (Oct. to April)	12.00

TIRE AND TUBE REPAIRS

3½ inch tire section, one cure	4.00
4 inch tire section, one cure	4.75
4½ inch tire section, one cure	5.00
5 inch tire section, one cure	6.00
Tube, single puncture (25c for each additional puncture)	.50
Blow outs	.75
Tube section	1.25

All service charges, for mounting and demounting, etc., based on time consumed.

WASHING CARS

Open cars up to 135 inch wheel base	1.50
Open cars over 125 inch wheel base	2.00
Closed cars up to 125 inch wheel base	2.00
Closed cars over 125 inch wheel base	2.50
Extra for wire wheels	.50
Extra for polish on open car	.50
Extra for polish on closed car	1.00
Use of wash rack	.50

BATTERY CHARGES

Battery recharging, 6 volt	1.00
Battery recharging, 12 volt	1.25
Battery recharging, 18 volt and over	1.50
Battery rental, per day	.20

Tri-City Automobile Trade Association

321 Masonic Temple Phone Dav. 7203

The dealers in Davenport, Iowa; Rock Island, Ill., and Moline, Ill., have taken a good step in putting their businesses on a war basis. They have standardized rates on a profit-making basis and propose to operate actively to get business and eliminate waste. The rates above were run in a newspaper advertisement

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-62	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	1595	....	1595	2150	2150	....	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1145	1095	....	....	1395	....	....
AMERICAN																	
B	6-3½x5	23.4	G & D	Zenith	G & D	DD	3	122	32x4	SS	1645	1595	1695	....	....	....	....
ANDERSON																	
20	6-3½x4½	25.3	Conn	Zenith	Wsths	DP	3	120	33x4	SS	**1465	....	....	....	2165	....	....
40o-F	6-3½x5½	29.4	Bosch	Stmbg	Wsths	DD	3	120	33x4	SS	**1925	....	....	....	....	....	....
APPERSON																	
8-18	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	34x4 32x4½	SS	†2550	....	2550 3500	....	....	....	....
8th Anniversary																	
AUBURN																	
6-39-B	6-3½x4½	25.3	Remy	Rafld	Remy	DP	3	120	34x4	SS	1345	1345	....	....	....	....	1595
6-44	6-3½x5½	29.4	Delco	Rafld	Delco	DP	3	131	35x4½	SS	....	1685	1685	....	2450	....	1985
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142	34x4½	QD	3750	3750	4000	4550	5000	5250	....
BELL																	
18	4-3½x4½	22.5	A.Kent	Zenith	Dyneto	D	3	114	32x3½	QD	†995	995	....	....	....	....	....
BIDDLE																	
H	4-3½x5½	22.5	Eisman	Zenith	G & D	DP	4	121	32x4	QD	2600	....	†2650	....	4100	4000	....
BOUR-DAVIS																	
18B	6-3½x5½	29.4	West.	Stmbg	West.	DP	3	118	33x4½	QD	....	1785	....	....	....	....	....
	4-3½x5½	22.5	West.	Rafld	West.	DP	3	118	32x4½	....	....	1680	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	5500	....	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3½x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	825	825	....	....	....	....	850
BUICK																	
E 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	1185	1845	....
E 44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	....	†1695	....	....	1265
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	125 132	35x5	SS	2970	†2970	2970	....	3840	4160	....
CASE																	
U	6-3½x5½	29.4	Wsths	Rafld	Wsths	D	3	125	35x4½	SS	†1875	....	187	....	**2375	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wsths	DP	3	117 122	32x4 34x4	SS	1565	1565	16..	1625	1950	2925	....
CHANDLER																	
	6-3½x5	29.4	Bosch	Rafld	Wsths	DP	3	123	34x4	SS	†1595	†1675	1595	2195	2295	2895	....
CHEVROLET																	
490	4-3½x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3½	C	660	685	....	....	1060	....	....
FA	4-3½x5½	21.7	Remy	Zenith	A-Lite	C	3	108	33x4	SS	935	935	....	....	1475	....	....
D	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	120	34x4	SS	†1550	1550	....	....	....	....	....
COLE																	
870	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	33x5	SS	2395	†2395	2395	2495	2595 2795	....	....
COLUMBIA																	
C&D	6-3½x4½	25.3	A.Kent	Stmbg	W.Lnrd	DP	3	115	32x4	....	†1495	1450	....	....	2395	....	....
COMET																	
C-50	6-3½x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	....	....	....	1285	....	....	....	....
COMMONWEALTH																	
4-4[illegible]	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	115	32x3½	SS	†995	1095	....	....	....	....	....
CROW-ELKHART																	
CE-36	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114	32x3½	SS	995	995	....	1295	1395	....	....
CUNNINGHAM																	
	8-3½x5	45.0	Delco	Stmbg	West	D	3	132 142	35x5 37x5	....	....	4250 4750	....	....	....	....	....
DANIELS																	
B	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	3500	3500	3500	....	....	....	....
DAVIS																	
H, I	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1585	1585	....	1850	....	....
J, I	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	125	34x4½	....	....	1950	1950	....	....	....	....
DIXIE FLYER																	
LS35	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	1095	1095	....	....	1375	....	....

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	830			1095	....	....	865
B	6-3½x4½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	1150	1150	*1150	1650	1650	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3750	3700	3750	....	5180	5250	....
MAXWELL																	
25	4-3½x4½	21.0	A.Kent	K D	Simms	C	3	109	30x3½	C	‡825	825	....	....	1275	1275 1175	935
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wsths	DP	3	136	35x5	QD	3900	3900	3900	....	5000	5050	....
MERCER																	
22-73	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3500	*3500	....	....	....	....	....
METZ																	
25	4-3½x4	24.0	A.Kent	A.W.T.	Wsths	F	.	108	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.3	Remy	Rafld	Remy	C	3	120	32x4	SS	1250	1250	....	1850	1950	....	300x
C-42	6-3½x5	29.4	Remy	Stmbg	Remy	C	3	127	34x4	SS	‡1490	1510	1525	2135	2275	2850	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1750	1750	....	....	2280	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†2375	....	2375	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	110	32x3½	SS	995	995	....	....	....	....	....
J	6-3½x4½	25.3	Conn	Stmbg	Dyneto	D	3	117	33x4	SS	1295	1295	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	31x3½	QD	565	‡635	....	....	965	....	....
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x3½	QD	....	995	....	....	1850	....	....
MOON																	
6-36	6-2½x4½	19.8	Delco	Tltsn	Wagner	DP	3	114	32x3½	SS	....	1295	....	....	....	....	....
6-66	6-3½x5½	29.4	Delco	Rafld	Delco	DD	3	125	35x4½	SS	†1985	....	1985	2650	2650	....	....
MOORE																	
30	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	106	30x3½	....	695	....	....	....	....	....	....
MURRAY																	
	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	....	2800	2800	2800	3600	....	4000	....
NASH																	
682								127					1545	....	....	....	....
681-683	6-3½x5	25.3	Delco	Marvel	Delco	P	3	121	34x4	SS	†1395	1395	....	2085	2085	....	....
684-685																	
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafld	Wsths	C	3	128	34x4½	QDR	†2150	†2150	2150	2645	2820	....	....
Twelve	12-2½x4½	39.6	Delco	Rafld	Bijur	C	3	128	34x4½	QDR	†2750	†2750	2750	3245	3420	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	‡200	†1400	....	....	....	....	....
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1050	1050	....	1550	1550	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1550	....	....	....	....
37	6-2½x4½	18.9	Remy	Johnson	Remy	C	3	112	32x4	SS	†1195	1195	....	1595	1695	....	....
OLYMPIAN																	
	4-3½x4½	16.9	Conn	Stmbg	A-Lite	D	3	112	32x3½	....	†1085	1085	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Tltsn	A-Lite	C	3	112	32x4	SS	‡965	965	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Tltsn	A-Lite	C	3	104 106	31x4	C	835	850	†875	....	1340	....	....
85B6	6-3½x4½	25.3	.....	Tltsn	A-Lite	C	3	116	32x4	....	1195	1195	....	1420	1620	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.7						136			‡3950	†3950	3950	....	....	5000	....
W-42	6-4 x5½	38.4	Bosch	Zenith	O-M	OM	6	142	35x5	SS	....	....	5300	....	6300	6300	....
PACKARD																	
3-35								136			....	....	4300	....	....	5850	....
3-25	12-3 x5	43.2	Delco	Own	Bijur	DD	3	128	35x5	QD	....	3950	3950	5300	....	5500	....
PAIGE																	
6-39	6-3½x5	23.4	Remy	Stmbg	G & D	D	3	117	32x4	SS	1395	1395	....	....	1925	....	....
6-55	6-3½x5½	29.4	Remy	Rafld	Remy	D	3	127	35x4½	SS	....	....	1830	2850	....	3230	....

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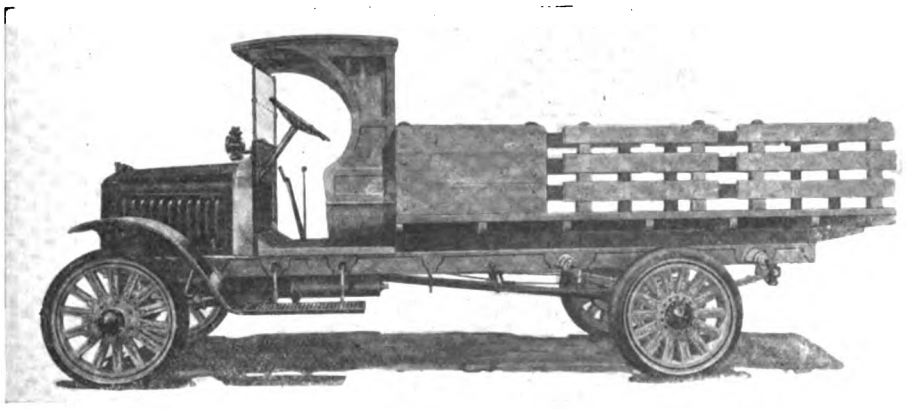
DOBLE-DETROIT																		
	2-5 x4	....	Doble	Stmbg	Wagner	..	.	135	35x5	....	....	....	3750	....	....	....	....
DODGE BROTHERS																		
	4-3½x4½	24.0	Delco	Stewart	N.E.	D	3	114	{32x3½ 33x4	SS	985	985	....	1425	1425	....	....
DORRIS																		
6-80	6-4 x5	38.4	Bosch	Stmbg	Wsths	DD	3	132	33x5	SS	....	....	....	....	....	....	....
DORT																		
11	4-3½x5	[illegible]	Conn	Carter	Wsths	C	3	105	30x3½	QD	925	925	**1060	1325	1325	....	....
DOUGLAS	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	122	34x4	SS	....	2000	....	....	....	....	....
ELCAR																		
D.F.	4-3½x5	19.6	A.Kent	L-O	Dyneto	DP	3	116	{33x4 32x3½	SS	....	1095	1095	....	{1625 1795	....	....
	6-3½x4½	25.3	A.Kent	Stmbg	Dyneto	P	3	116	33x4	....	....	1295	1295	....	....	....	....
ELGIN																		
A	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	117	33x4	....	†1195	1095	....	....	**1645	....	....
EMPIRE																		
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS	1165	1125	....	....	....	....	....
70-A	6-3½x4½	25.3	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	....	1345	1375	....	....	....	....
73	.....	.....	.....	.....	.....	..	.	....	....	....	....	†1360	....	....	....	....	....
ESSEX	4-3½x5	18.2	Delco	Own	Delco	D	3	108½	32x4	....	....	1395	....	....	....	....	....
FIAT																		
E-17	4-5½x6½	44.1	Bosch	Zenith	Wsths	D	4	140	35x5	QD	....	....	5500	....	....	6500	....
FORD																		
T	4-3½x4	22.5	Own	{Holly Kngstn	.....	D	2	100	30x3½r	C	435	450	....	650	785	....	....
FRANKLIN																		
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	33x4½	SS	2200	†2445	2445	2850	3050	3200	....
GLIDE																		
6-40	6-3½x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	....
GRANT																		
G	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	114	32x3½	....	‡1095	1095	....	1575	1595	....	1350
HALLADAY																		
S	6-3½x5	23.4	A-Lite	Zenith	Wsths	D	3	{120	34x4	SS	‡1375	1375	....	....	....	....	....
R	.....	....	.....	.....	.....	..	.	{122	....		1530	1530	....	....	....	....	....
HARROUN																		
	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....	....	895	....	....	....	....	....
HARVARD																		
4-30	4-3 x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	785	†985	....	....	....	....	....
HAYNES																		
38	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1850	....	....	....	....	....
39	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1950	....	1950	2660	....	....	....
44	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2910	....	2910	....	3460	....	....
HOLLIER																		
206	6-3½x4½	25.3	Remy	Stmbg	Splitdf	C	3	116	32x4	SS	....	1485	....	....	....	....	....
188	8-3 x4½	28.8	A.Kent	Stewart	Splitdf	C	3	116	34x4	SS	†1395	1385	....	....	....	....	....
HUDSON																		
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	34x4*	SS	....	†2050	1950	....	2750	3400	....
HUPMOBILE																		
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x4	....	1350	1350	....	....	....	....	....
INTER-STATE																		
T	4-3½x5	19.6	Remy	Schebler	Remy	C	.	3	110	33x4	SS	950	1000	1025	....	....	....	....
JACKSON																		
349	8-3 x3½	28.8	A.Lite	Zenith	A-Lite	DP	3	118	34x4	SS	†1495	1495	1570	....	2195	....	....
JONES																		
27-ABC	6-3½x5½	29.4	Remy	Rafid	Wsths	DP	3	125	34x4	SS	†1875	1875	1875	....	2750	....	....
JORDAN																		
J-60	6-3½x5½	29.4	Delco	Stmbg	Bijur	DD	3	127	33x4½	SS	1995	†1995	1995	....	2750	3500	....
KING																		
F	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	....	†2350	2150	....	**2950	....	....
KISSEL																		
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1495	1495	1585	1935	1935	....	1935
Double-6	12-2½x5	39.6	Delco	Stmbg	Own	DD	3	128	34x4½	....	1585	....	2450	....	2850	....	2850
KLINE																		
6-38	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1495	1495	†1495	....	2200	....	....
LEXINGTON																		
6-O	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	....	1385	....	....	1545	....	....
6-R	6-3½x4½	25.3	Conn	Rafid	Wsths	P	3	122	34x4	QD	....	1585	1585	....	1785	....	....
LIBERTY																		
10-B	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1385	1385	....	....	1925	....	....
LOCOMOBILE																		
E-38	6-4½x5	43.3	Berling	B & Ball	Wsths	DD	4	139	37x5	QD	†5150	*5000	5000	....	....	6200	....
E-48	6-4½x5½	48.6	Berling	B & Ball	Wsths	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7200	....
LOZIER																		
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	....	....	....
82	6-3½x6	36.0	Eisman	Rafid	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																		
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD	.	132	35x4½	SS	....	....	1650	....	....	....	....
MADISON																		
	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	{124 {120	34x4	SS	†1485	1485	1485	....	....	....	....
PAN-AMERICAN																		
G-5	6-3½x5	23.4	G & D	Rafid	G & D	D	3	120	33x4½	SS	....	1650	....	1650	....	1950	....
PATERSON																		
6-45	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	120	32x4	C	†1295	1265	1295	....	**1795	....	....
PEERLESS																		
56	8-3½x5	33.8	A.Kent	B&Ball	A-Lite	DD	3	125	35x4½	SS	†2550	....	2550	3050	3250	3690	....
PIERCE-ARROW																		
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	34x4½	QD	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60.0	Bosch	Own	Wsths	C	4	147½	36x5½	QD	†6400	6400	6500	7800	....	....	....
PILOT																		
6-45	6-3½x5	23.4	Delco	Tltsn	Delco	DP	3	120	32x4	SS	†1395	1395	....	....	....	....	....
PREMIER																		
6-C	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	....	†2285	2285	....	....	....	....
PRINCESS																		
36-F	4-3½x4½	22.5	Splitdf	Schebler	Disco	D	3	108	32x3½	....	875	875	875	....	....	....	....
REGAL																		
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD	....	795	....	....	....	....	....
REO																		
	6-3½x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	1550	1550	....	....	....	....
	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	120	34x4	SS	1225	1225	....	....	....	....	....
REVERE																		
	4-4½x6	30.6	Bosch	Stmbg	Bijur	DD	4	130	32x4½	....	....	....	....	....	....	....	....
ROAMER																		
C-6-54	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DP	3	128	32x4	SS	2350	†2250	2475	....	....	....	....
D-4-75	4-4 x6	25.6	Bosch	Stmbg	Bijur	DP	3	128	32x4½	SS	2950	....	3250	....	3950	....	....
ROSS																		
	8-3½x5	33.8	.....	.....	W.Lnrd	DD	3	130	35x4½	SS	‡1850	....	1850	....	....	....	....
SAXON																		
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	935	1045	....	1395	....	....	....
SAYERS																		
SIX-42	6-3½x4½	25.3	Delco	.....	Delco	P	3	118	32x4	....	....	1395	....	....	....	....	....
SCRIPPS-BOOTH																		
D&H	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1285	....	....	....	....	....	....
G	4-3½x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	‡935	....	....	....	....	....	....
Six-39	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1195	1195	....	....	....	....	....
SIMPLEX																		
V	6-4½x6½	45.9	Eisman	Nwomb	Bosch	D	4	143½	37x5r	QD	Chassis	7000	....	....	....	....	....
SINGER																		
	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	139	35x5	QD	4200	†4325	4100	....	5250	5125	....
STANDARD																		
G	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	....	†2450	....	2450	....	3500	4000	....
STANLEY																		
Steamer	2-4 x5	12.8	.....	.....	.....	..	.	130	35x4½	SS	....	†2750	2800	....	....	....	....
STEARNS																		
SKL4	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS	†1935	1935	2175	2400	2575	3200	....
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	125	35x4½	SS	†2700	....	2700	3200	....	3875	....
STEPHENS																		
Salient Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	118	32x4	SS	1585	1585	†1650	....	2085	....	....
STUDEBAKER																		
SH-4-40	4-3½x5	19.6	Remy	Schebler	Wagner	C	3	112	32x3½	SS	1050	995	....	....	1525	....	....
EH-6-50	6-3½x5	29.4	Remy	B&Ball	Wagner	C	3	119	32x4	SS	1450	1395	†1395	....	....	....	....
E-G-6	6-3½x5	36.0	Remy	B&Ball	Wagner	C	3	126	33x4½	....	....	1795	....	....	1950	....	....
STUTZ																		
S-7	4-4½x5	30.6	Delco	Stmbg	Remy	C	3	{120 130	32x4½	SS	2550	†2650	*2750	....	....	....	....
SUN																		
17	6-3½x5	29.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	....	....	....	....
TEMPLAR																		
A-445	4-3½x5½	18.2	Remy	Zenith	Remy	P	3	118	32x4	SS	2385	2085	....	....	....	....	....
VELIE																		
38	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS	1390	1390	†1390	....	1935	....	....
39	6-3½x5½	29.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS	....	....	1645	....	....	....	....
WESTCOTT																		
S-18	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1930	2290	2290	**2830	**2890	....	....
WHITE																		
16-Valve	4-4½x5½	28.9	.....	Own	L-N	P	4	{124½ 137½	35x5	U	†5000	....	†5000	6050	6050	6200	....
WILLYS-KNIGHT																		
88-4	4-4½x4½	27.2	Conn	Tltsn	A-Lite	C	3	121	34x4½	SS	....	....	1625	2275	2325	2425	....
88-8	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	125	34x4½	SS	†2550	....	2100	....	2800	2900	....
WILLYS																		
89-6	6-3½x5½	29.4	Conn	Tltsn	A-Lite	C	3	120	33x4½	SS	†1450	....	1450	....	1330	....	....
WINTON																		
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	3150	3150	3200	4150	4400	4400	....
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3850	3850	3850	4850	5100	5100	....
WOOD'S																		
Dual Power	4-2½x4	12.1	A.Kent	Stmbg	Own	Mag	.	124	35x4½	QD	....	....	....	2950	....	....	....

*6-passenger. †4-passenger. ‡3-passenger. t-town car.
**Convertible.

ABBREVIATIONS—"A. Kent" Atwater Kent, "A-Lite" Auto-Lite, "B. & Ball" Ball & Ball," "Conn" Connecticut, "G & D" Gray & Davis, "Eisman" Eisemann, "L-N" Leece-Neville, "N. E." North East, "Nwcmb" Newcomb, "O-M" Owen Magnetic, "Rafid" Rayfield, "Stmbg" Stromberg, "Splitdf" Splitdorf, "Tltsn" Tillottson, "Wsths" Westinghouse, "W. Lnrd" Ward Leonard, "D" Disk, "DD" Dry Disk, "P" Plate, "DP" Dry Plate, "C" Cone, "F" Friction, "G" Gearless, "CU" Control Unit, "Mag" Magnetic, "SS" Straightside, "QD" Quick Detachable, "C" Clincher, "DC" Detachable Clincher, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers, . NOTE—37½x5½ r means that the rear tires are 37x5½ and the front are smaller. Detachable top, 300x, means $300 extra.

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Muskegon 2-Ton Truck at $2145



A TWO-TON truck made up in great part of well-known components is being manufactured by the Muskegon Engine Co., Muskegon, Mich. The chassis price is $2145, including lazyback seat. Fitted with cab, windshield and standard stake body the price is $2360.

The engine is a Model C-4, four-cylinder Continental, 4⅛ x 5¼ in., with three bearing crankshaft; all bearings are in the upper half of the crankcase. Crankcase and oil pan are aluminum and all moving parts are accessible. Lubrication is by a plunger pump maintaining a constant level. The cooling system has a centrifugal pump, a large fan and an armored type cellular radiator with separable cores to permit of quick repairs. An Eisemann magneto with fixed spark furnishes ignition. A 1¼ in. Stewart carbureter is fed from a 16 gal. welded tank under the seat, feed being by the Stewart vacuum system. The Pierce governor is operated by engine speed.

Transmission

A three-speed selective gearset, multiple disk clutch, tubular drive shaft and Torbensen Type C rear axle comprise the transmission members. The gearset has gears and shafts of nickel steel, gears ⅞ in. face, and annular ball bearings throughout. The clutch has fourteen saw steel plates with Raybestos friction surfaces. Drive shaft is 2¼ in. diameter, with 5/32 in. wall, and is provided with grease and dustproof joints of substantial construction. An M & S differential is incorporated in the internal gear drive rear axle.

Gear ratios are 28:1 on reverse, 23.2:1 in first, 13.6:1 on second and 8:1 on high. There are two sets of Thermoid-lined brakes, the service set external contracting, 18 x 2½ in., and the emergency set internal expanding, 17½ x 2¼ in.

Chrome-vanadium steel, heat-treated and oil-tempered, is used for the springs, which are 40 x 2¼ in., with nine leaves in front and 56 x 3 in., with eleven leaves in the rear. The spring bolts are 20 carbon steel, hardened and ground and fitted with grease cups of large capacity. Under load the rear springs are almost horizontal. The artillery type wheels have fourteen square spokes, 2 in. in front, 2¼ in. in rear, revolving on Bower bearings, and are fitted with Firestone tires 36 x 4 in. in front, 36 x 6 in. rear. The wheelbase is 144 in., but 120 and 165 in. can be furnished on order at an extra price.

The frame is pressed steel channel section, 34 in. wide, inswept to 30½ in. between the front wheels. Sections are 5⅝ in. deep at the center, 3⅝ in. wide and ¼ in. thick. The entire frame is riveted, well braced and gusseted. A 20 in. steering wheel is mounted on an inclined column and has doubled threaded screw and half nut with only one adjustment.

Standard equipment includes front fenders, running board, three oil lamps, tool kit, tool box and horn. The weight of the chassis is 4080 lb.

Each purchaser of a Muskegon truck receives a coupon book, the coupons to be presented to any Muskegon service station in payment for inspection and lubrication service. Each coupon is stamped with the month and year in which it must be used and the number of the truck on which it applies.

Rochester-Buffalo Truck Routes

ROCHESTER, May 20—The trend toward motor haulage is being realized in this city by the establishment of motor truck express lines. Two such lines now connect Rochester with Buffalo, and the Empire State Transportation Service has recently extended its lines as far east as Utica.

Although the plan was enthusiastically received by the Buffalo business men, the first few trips to Buffalo were made with little or no freight. As soon as Rochester manufacturers began to realize that the plan was a success, however, they were quick to take advantage of the opportunity, and now the Empire State Service has secured the entire business of several large Rochester manufacturers.

The service of both the Empire State and the Erie Transportation companies now consists of one truck each way each day between Rochester and Buffalo. The trucks leave both cities at night and arrive and deliver the goods early the next morning, changing drivers in Batavia. If the demand is sufficient day loads will be established.

Standardize Rural Truck Expresses

SYRACUSE, May 20—The Motor Truck Transport Association of the State of New York was organized here recently. This association was formed for the purpose of standardizing the motor truck express service throughout the State and for the purpose of facilitating longer shipments. It links up the most important motor truck lines in central and western New York. The business of the association is to be handled by an executive committee of which Ben Wiles, a Syracuse attorney, is chairman.

Columbia Adds to Organization

PONTIAC, May 20—The Columbia Motor Truck & Trailer Co. has made several appointments in its sales organization. E. H. Habersham, Baltimore, will represent the southern territory east of the Mississippi. H. W. English, Spokane, will represent the Pacific-Northwest. Both these men were connected with the Republic Motor Co., Alma, Mich. A. H. Pearsall, formerly branch manager of the Studebaker Co. of Chicago, becomes representative for the Western States, with headquarters at Chicago.

A Correction

NEW YORK, May 20—Below a picture of the show window of the McCoy Motor Supply Co., Los Angeles, appearing in a recent issue of Motor World, it was erroneously stated that the merchandise displayed was Advance Felt Specialties. This should have been Advance Cort Insert Brake Lining.

Coming Events

Racing

Sheepshead Bay, N. Y.	Championship	May 30
Chicago	Chicago Speedway	June 22
Cincinnati	Cincinnati Speedway	July 4

Conventions

Hot Springs, Va.	Convention National Association of Automobile Accessory Jobbers	June 5-12

Show

Dallas, Tex.	Seventh Annual Texas Automobile Show Texas State Fair.	Oct. 14-27

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume LV
No. 9

New York, May 29, 1918

Ten cents a copy
Two dollars a year

A Sales Bulletin Of Tire Trade Conditions

A thorough knowledge of trade conditions—the work of investigating experts, to be sent to Miller Dealers each week.

Supplementing the big "Miller Uniform Tire Book," acknowledged by experts to include the most comprehensive trade investigation ever made by a private concern, we will mail regularly to every Miller Dealer a bulletin bringing out some new and important angle in tire conditions.

Each bulletin will contain a chart based on actual figures and data secured during our nation-wide investigation, together with a complete explanation.

Miller Dealers, as well as others, all agree that the Miller Uniform Tire Book is the most valuable book ever given to the tire trade.



These bulletins will bring out many equally interesting facts that found no place in this book or have been secured since it was published.

When it is considered that this investigation covered practically every state in the Union, that the answers from 25,349 dealers, distributors and owners have been checked, compiled and charted and that the investigation is the work of nationally known experts, the value of this book and these bulletins cannot be overestimated.

Any tire dealer, whether he handles Miller Tires or not, will be mailed free the wonderful Miller Book and sample charts upon request. If you are interested, send in your name today.

Miller UNIFORM MILEAGE Tires
GEARED-TO-THE-ROAD

THE MILLER RUBBER CO.
Dept. A-26 Akron, Ohio



The Ground Work on Which to Build a Bigger Tire Business in 1918

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THE UTILITY SURE-GRIP PEDAL

For Fords Is Now Ready

Every Ford driver knows the danger of accident or collision when his foot slips off the pedal—and his foot **often** slips off because the pedal is small and smooth.

The Utility Sure-Grip Pedal permits a firm grip on the pedal—the foot absolutely cannot slip. The heavy rubber pad and the flanges at the side prevent all possibility of a slip, even in rainy weather when the shoes are wet.

Utility Sure-Grip Pedals also serve to distinguish the brake and clutch pedals from the reverse when the light is uncertain.

The Utility Sure-Grip Pedal converts the small, smooth Brake and Clutch Levers into standard size, safe, comfortable pedals. Without question one of the most needed articles for a Ford car. And the price—$1 per pair—makes Utility Sure-Grip Pedals the best buy on the market.

ONE DOLLAR PREVENTS DAMAGE SUITS and ARGUMENTS

By installing Utility Sure-Grip Pedals on Fords, drivers can absolutely prevent accidents due to the foot slipping off the pedal. In crowded traffic a slip of the foot may mean jamming into the car ahead, which will inevitably mean an argument and later on perhaps a lawsuit. Is it worth taking chances when a pair of Utility Sure-Grip Pedals can be purchased for one dollar?

A car is lucky if it comes out of the slightest collision with a damaged fender—and a damaged fender means a repair bill of more than one dollar, the price of Utility Sure-Grip Pedals. Utility Sure-Grip Pedals are made of high-grade pressed steel beautifully finished in black baked enamel and equipped with a heavy pad of highest grade rubber edged with metal. They can be attached instantly—no holes to drill—no special tools required—one nut to tighten and the job is done. Once they are installed they absolutely cannot slip off.

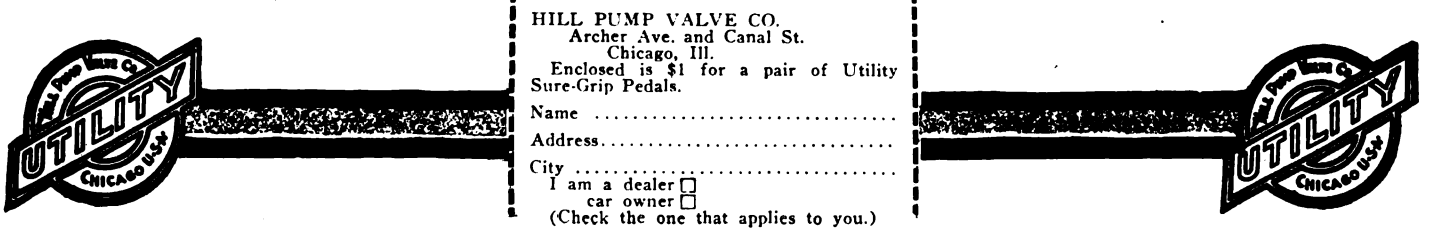
The highest grade material is used in their construction. There is nothing to work loose and drop off—nothing to get out of order—they will last as long as the car runs.

Like all other Utility products manufactured by this concern, Utility Sure-Grip Pedals carry an unqualified guarantee of satisfaction. Send the coupon now.

DEALERS—ATTENTION!

LOOK OVER THIS PROPOSITION AND YOU WILL SEE THAT UTILITY SURE-GRIP PEDALS FOR FORDS ARE SLATED FOR A TREMENDOUS SUCCESS. ORDER YOUR SAMPLE PAIR NOW AND WRITE FOR OUR ATTRACTIVE PROPOSITION.

SPECIAL NOTICE—Utility Sure-Grip Pedals are covered by U. S. Patents granted Jan. 1, 1918; other patents pending.



HILL PUMP VALVE CO.
Archer Ave. and Canal St.
Chicago, Ill.
Enclosed is $1 for a pair of Utility Sure-Grip Pedals.

Name .....

Address .....

City .....

I am a dealer ☐
car owner ☐
(Check the one that applies to you.)

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DEALERS, JOBBERS AND GARAGEMEN

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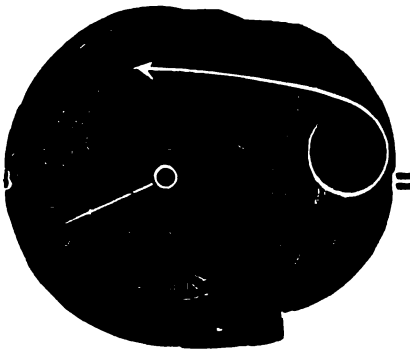
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It Costs No More to Have Accuracy

NO motorist who wishes to make the most of his car will attempt to get along without a speedometer, and as long as he is to have a recording instrument at all he should demand the one that assures him of the utmost accuracy and durability.

He will find these essential qualities combined to the highest degree in the

CORBIN-BROWN SPEEDOMETER

Corbin-Brown reliability begins with the strong, perfectly-meshing drive gears, extends through the sturdy, almost frictionless link cable and finishes in the instrument itself. Every part is simple and amply heavy for the work it has to do.

The centrifugal principle on which the Corbin-Brown operates keeps it free from the troubles found in more complicated systems. It is not affected by extreme temperatures or electrical influences. Long usage and hard road shocks do not interfere with its accuracy.

When ordering the Corbin-Brown do not fail to specify the Maximum Speed Hand, an extra feature which registers the highest speed attained and remains at that point until reset to zero. You don't have to watch the speedometer—the speed record remains as long as you want it.

The Corbin-Brown catalog illustrates the various models and describes the features which make this speedometer your logical "buy."

Write For Your Copy Today

Corbin Screw Corporation
American Hardware Corporation, Successor
NEW BRITAIN, CONN.
BRANCHES: New York Chicago Philadelphia

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Anywhere—
Everywhere—
Rain or Shine—

Genemotor
Trade Mark

"It Starts your Ford and Lights It Too"

EVEN if you cannot obtain as many Ford cars as you require you can make money selling Genemotors to *present* Ford owners.

The live dealer in every city should sell Genemotors. If there is no agency in your city write today and we will tell you how you can make additional profits.

Built by the General Electric Company

Price $90 f. o. b. Lynn, Mass.
Sold Everywhere

Prest-O-Lite Batteries Standard Equipment

Send for the GENEMOTOR Catalogue

A. J. PICARD & CO., Inc.
General Distributor
61st Street at Broadway, New York

The "GENEMOTOR" is a circular unit 10" long and 6¼" in diameter. It weighs exactly 37 lbs., being by far the lightest single unit Ford starter ever manufactured. This unique motor generator is mounted on a suitable one-piece bracket by means of two large cap screws, located at the front of the unit. The chain can be easily tightened by raising the "GENEMOTOR" by an adjusting screw turned by an ordinary monkey wrench. This the car owner can easily perform himself without so much as soiling his or her hands.

The bracket is attached to the engine by utilizing the holes for the two forward crank case bolts. These are replaced by two longer bolts furnished, which secure the "GENEMOTOR" bracket in place. The front of the bracket is firmly held by the regular front water coupling bolts, a new water coupling being cast integral with the bracket.

A Link Belt chain is furnished already assembled, which has been especially manufactured for the "GENEMOTOR." After mounting the large sprocket on the crank shaft, the chain can be easily slipped around it without the necessity of opening one of the links. No special effort to secure chain alignment is necessary, for when the "GENEMOTOR" is bolted into place the chain must line up.

The battery is the standard 12-volt, 45-ampere hour type.

Heavy one-eighth inch plates are used exclusively. The storage battery is guaranteed by the manufacturer for twelve months.

The battery support consists of an angle iron cradle, which is securely clamped to the frame of the car. This feature distributes the weight evenly, and keeps the running boards clear.

The starting switch is substantially made for a quick "make and break" and is of ample capacity to carry the current. It is fastened by two bolts to the permanent floor or heel-board. A slight pressure of the heel closes the contact tightly until released.

The lighting switch is a standard two-gang, of the Cutler-Hammer type. A resistance coil is shunted across one of the units, so that one button turns on Head and Tail lights full, while the other dims them for city driving. The whole mechanism is mounted in a small black-enameled case, which clamps on the steering post. This makes the control of the lights most convenient and a simple matter to dim headlights when passing other cars.

The wiring is furnished completely assembled with terminals, etc., making the installation very simple and minimizing chances of making improper connections.

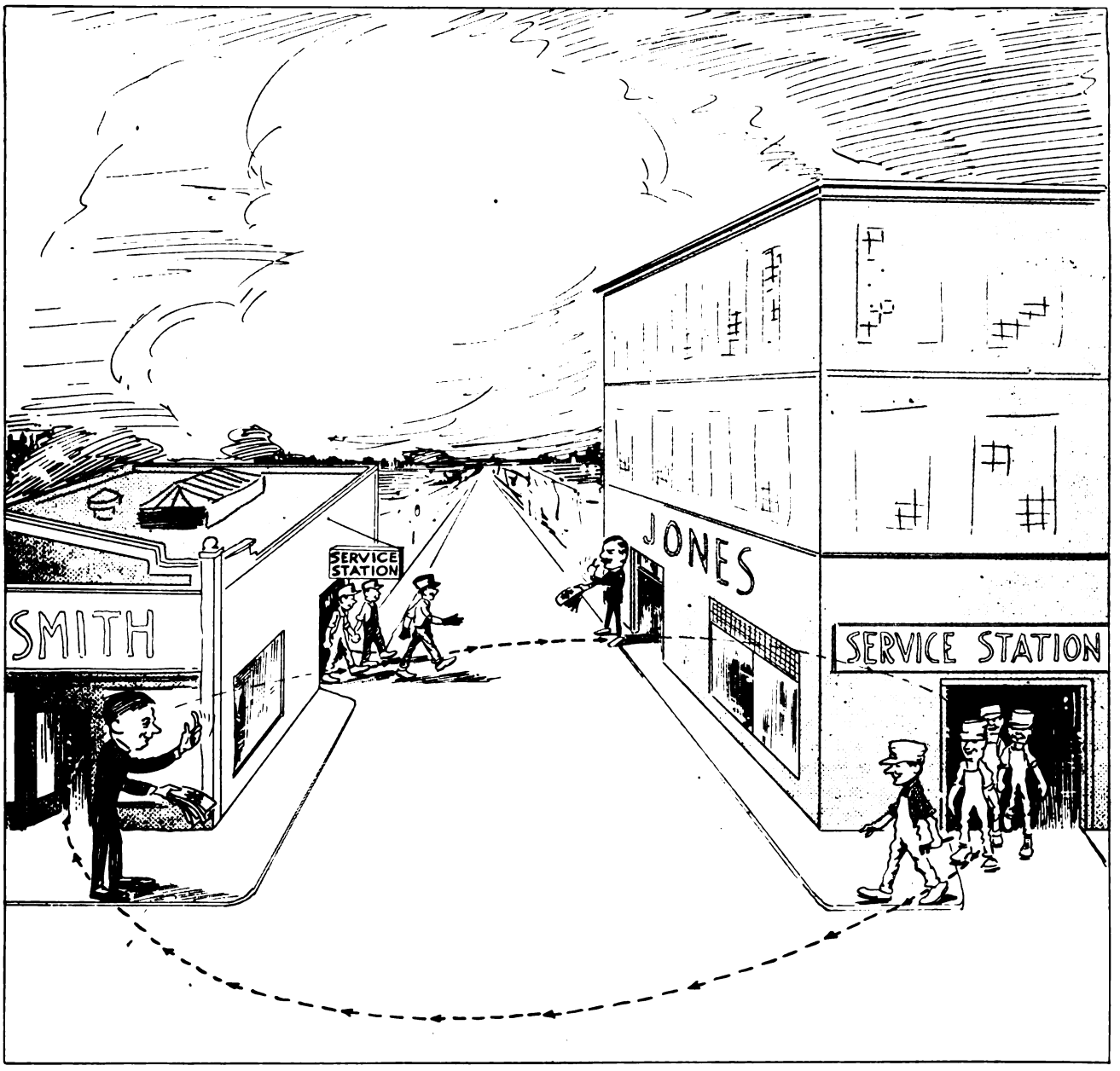
The Lamp Equipment consists merely of an Electric Tail Light, which is furnished. The Standard Ford Headlamps are used, but it is necessary to replace the bulbs with 12-14 volt type.

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LV New York, U. S. A., Wednesday, May 29, 1918 No. 9

The Vicious Circle



Smith hires Jones's mechanics. To replace the lost men, Jones hires some of Smith's mechanics. As they hire back and forth, the men keep going around and around, the price of labor keeps going up and the overhead climbs higher and higher. Each man thinks he's putting something over on the other, but he's simply putting something over on himself. *Read page 28*

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The Lenses That Worked

and

The Laws That Failed

Reasons why the lens business has become sluggish and things that may be done to help the situation

ONE of the finest examples of "all dressed up and no place to go" is found in the lens situation as it stands to-day.

The stockrooms of many jobbers and dealers contain lenses which were designed to eliminate headlight glare, and the lenses have become an over-stock because the merchandisers have been unable to move the goods.

This has slowed up the stream of production. With these lenses moving slowly, the manufacturers have been unable to continue manufacturing in former quantities.

The lens business started off with a big push, and—like some of the well-known Hindenburg pushes on the Western front—it went only a little ways and then the rush stopped.

Since then the makers and distributers of lenses have been wondering what happened and what could be done to relieve the situation. There are thousands of dollars invested in lenses, and there are several million car owners running around the United States who ought to have them, but as the situation stands to-day there is little probability that the car owners will come and get these lenses unless some action is taken by the people who are back of the merchandising of the product.

Let us concede at the beginning that there is a need for lenses. It was this need which started the whole affair. Realizing that there was a need for lenses to eliminate the dangerous and ungentlemanly headlight glare on the highways of different states laws were introduced in a great many different legislatures until to-day practically every state has a headlight law of some kind.

With all these laws being put on the statute books everyone, car owner, dealer and manufacturer, was quick to see that here was a field which would require a device of some kind in order that car owners might conform with the law.

Wherefore manufacturers began turning out lenses. It was easy to figure how many would be needed. All a manufacturer had to do was jot down on a sheet of paper the number of cars running in a certain state, divide that by the percentage of business he thought he could get, and manufacture accordingly.

But something slipped.

The headlight laws and the manufacture of lenses started about the same time, and if everything had gone through on schedule lenses would to-day be on the headlights of all automobiles.

Laws Not Enforced

But the one weak link in the whole chain was that headlight laws were not enforced, whereas everyone expected that every owner of a car which was not equipped with a lens or a dimming device of some kind would be speedily brought to terms by the police and made to equip his car with a dimming device. Very little ever was done about this, and the result was that the law was looked upon with disrespect by car owners and thousands of them never put on any dimming devices at all.

Wherefore to-day there are many car owners that are conducting themselves on the highways in an ungentlemanly and dangerous manner. The glare is not only annoying to other motorists but it is likely to cause the driver of the approaching car to run into a ditch, damaging his own or the other car. What may happen in a case of excessive glare is an old story that is familiar to everyone, and little need be said about it here.

When the authorities failed to enforce the law, and motorists failed to see any particular necessity for equipping their cars with lenses, the lens business lagged. The stocks that had started on their way from factories hesitated, and most of the hesitating was done on the shelves of jobbers and dealers, who still have lenses and would be only too glad to get rid of them.

The lens business is a legitimate business. There is a need for a device of some kind like this to eliminate headlight glare. Inasmuch as this need exists, and inasmuch as this device is a legitimate device, the problem then becomes one of *what is going to be done to move these lenses and make them a more salable article.*

Must Recreate the Need

The whole situation may be covered by the one statement that the necessity is to *recreate the need for the lens.*

Or, we might say in other words, *make this need a necessity.*

How is this need going to be made a necessity?

It can be done in two ways.

1—*It can be done by the enforcement of headlight laws.*

2—*Or, it can be done by an ethical appeal to the motorist.*

Procedure number one means compelling the car owner to equip his car with a lens. The other appeal is the one of persuasion, and is comparable to the old Æsop fable of the Sun and the Wind in their famous contest to make the man take off his coat.

The Wind blew and blustered and tried and tried, but he couldn't make the man take off the overcoat. It only stuck the tighter, but when the Sun got a chance at the man's overcoat we all know what happened, and what happened in that case is comparable to what may happen if an ethical appeal is made to the motorist and he is advertised into seeing that he is not a gentleman of the road unless his car conducts itself in a gentlemanly manner.

Educate Owners

There are roadhogs and all kind of road nuisances, and a campaign of education to eliminate these elements could

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be well linked up with an educational campaign to make the motorist see the necessity for having his car equipped with lenses.

But let us first take up the question of compelling the use of lenses by the enforcement of law. The reason laws have been unsatisfactory to car owners and to the public in general is that no two states have laws that are alike. It has come about, however, that in most states the standard requirements for headlights and headlight lenses are the same. These briefly are: *The rays of a lamp shall not rise above 42 in. at a distance of 75 ft. in front of the car.*

The illumination shall fall 10 ft. to the sides of the car, at a distance of 10 ft. in front of the car.

On unlighted streets, and on country roads, the lamps shall make objects visible at a distance of 250 ft. ahead.

There are other requirements relating to trucks, but they are merely modifications of the above regulations. Practically all the headlight laws of different states are built upon the above basis.

Should Have Uniform Laws

One of the great needs in order to have a proper distribution of lenses is that the laws in all states be made more or less the same. A uniform headlight law would be a fine thing, and it might be put into effect through the machinery of the National Automobile Dealers' Association if the members in that organization are sufficiently interested in the merchandising of lenses.

Another piece of machinery that might be used to put the law over is the National Association of Automobile Accessory Jobbers, which naturally is more interested in the sale of lenses than are car dealers. It is the jobbers—and the dealers who buy from jobbers—who have these great stocks of lenses piled up on their shelves.

Having secured headlight laws that would be satisfactory in all states, one of the next essentials would be a Bureau of Inspection that would permit the manufacturer or seller of lenses to take his product to some state department and have the state tell him whether it met the requirements of the statute in that state.

This has been done in the State of New York, which has recently passed a law providing for an inspection department of this kind. There is a fee attached, but it is not such as to make the law burdensome. This legislation covering inspection follows:

New York's New Law

"Any person may submit to the Secretary of State a device for controlling the front lights of motor vehicles so that they shall comply with the provisions of this section while the vehicle is proceeding, together with an application that such device be tested as prescribed by this section. Such applicant shall pay to the Secretary of State a fee of fifty dollars. Thereupon the Secretary of State may submit such device to a qualified technical expert or experts from the physical laboratory of a university or technical school within the State of New York, under the jurisdiction of the University of the State of New York, with a request that it be tested as to its compliance with the provisions of this section. Upon notice from such technical expert or experts that such test has been made, and that such device complies with the provisions of this section, the Secretary of State may issue a certificate to the applicant describing the device and certifying that such test has been made and that the device complies with the provisions of this section. The expense of such test by such technical expert or experts shall be paid from the fee collected from the applicants, and the balance of such fee, if any, shall be paid into the State treasury."

New Jersey's Law

In New Jersey the method of enforcing the automobile law requires that a car owner when applying for a new license or a renewal of his old one must drive his car up to the inspection division for the purpose of having his brakes, mirrorscope, warning signal and headlights inspected. Each of these must be satisfactory before a license is granted, and every car must have on its headlamps either a headlight lens or a glare-dimming device which has been tested, approved and certificated by the state commission.

Having gotten the machinery all ready, a campaign might then be undertaken for the enforcement of these headlight laws. There doubtless would be opposition from some clubs and automobile owners, and just what would happen in that case is problematical.

Some clubs have opposed some headlight laws on the grounds that they were unnecessary and drastic, but it is hard to see how any gentlemanly car owner could object to a law whose only purpose was to compel all motorists to operate their headlights in such a manner that they were not a danger and annoyance to the drivers of other vehicles. Almost any man is willing to admit the justice and sensibleness of this contention.

This enforcement of law could be taken up by trade associations, or could be brought about in various other ways.

Appeal to Fair Play

We now come to the question of an ethical appeal to the motorist, which we compare to the sun making the man take his overcoat off. While it might require time to get uniform laws in all states and bring about their enforcement an ethical campaign for the use of lenses could be started at any time.

Furthermore, an ethical campaign of this kind might be conducted in conjunction with whatever advertising was run referring to headlight laws, because the whole thing in its final analysis is founded upon gentlemanly conduct and safety to the drivers of cars.

In case the problem were approached from this standpoint of ethical appeal, manufacturers would have to revamp their advertising. Some of them have already advertised along these lines, *but others have simply stated that their lenses complied with the law, and would save the owner prosecution. When the prosecution part fell down the advertising went flat.*

In reality, it amounts to the adoption of a new selling idea by the lens people. It means new advertising based upon a new appeal. It means approaching the car owner from a different standpoint, *and it means educating jobbers and dealers to sell the lenses upon an entirely different basis.*

It would then follow that the dealer and the jobber in their advertising would have to work along the new lines, and whenever the dealer approached a customer he would have to make an appeal to his gentlemanly instincts *rather than to tell him that he was likely to be arrested if he didn't have lenses on his car.*

This latter argument, however, could well be used in case there was any foundation for its use, but it hardly seems probable that a proposition of this kind could be put over by the use of threats against car owners. They are not even frightened on the question of license tags. Most of them have them, but now and then a car owner—and even a dealer—takes liberties on the license tag question, and there are cars that are run from year to year, in some of the more remote sections, on licenses that are so old that the paint has become mildewed, and the state is robbed of hundreds of dollars.

Law Not Respected

It is well known that the ordinary American citizen hasn't all the respect that he ought to have for the laws that his own representatives have made. He is often prone to figure that the law is something that is set up to test his skill and ingenuity, and if he can avoid it he considers himself a very clever man.

The thing that is going to have the greatest influence in the marketing of lenses is going to be merchandising, regardless of whether there are headlight laws or not.

It has been said that a salesman can sell anything to anybody at any time, and, while that is somewhat fanciful and exaggerated, it is nevertheless true that *these lenses could be moved if sufficient merchandising efforts were put behind them.*

The merchandising effort has been responsible for those that have moved in the past. The salesman of the manufacturer has sold them to the jobber, the salesman of the jobber has sold them to the dealer, but the dealer hasn't been sufficiently sold on the idea or skilled in salesmanship to move them on to the consumer.

The Auto Equipment Co. of Denver states that a big advertising campaign caused it to believe big sales would continue, but that in the case of the particular lens stocked the advertising campaign was dropped, and this left it with a big stock. In this particular case perhaps some of the blame for the jobbers' overstock should be laid to the blame of the manufacturer who discontinued his advertising and failed to support the dealer at a time when support was needed.

J. E. Faeth, of the Motor & Machinist Supply Co., Kansas City, says he believes the inability to move the lenses is occasioned by the failure of the state to enforce the laws. He says: "We had

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occasion to note the difference in the attitude of our customers in the two states of Kansas and Missouri when the dimming laws went into effect.

Kansas Law Went Flat

"Kansas is a state that usually makes an attempt to enforce state laws, and our customers provided for this, getting a considerable stock of lenses preparatory to supplying the trade when this law would become effective, but it seems this is one law that the State of Kansas has not been able to enforce. At least not to the extent most of the state laws are enforced.

"When the Missouri state law became effective we could not help but note the wonderful difference in the demand for lenses. We believe the people as a rule in the State of Missouri do not take a state law as seriously as do the Kansas people. At least this is our view from the demand we have had from the different two states on this item.

Suggest Law Enforcement

"We might suggest that, if you could write some articles on the protection and enforcement of the different state laws with reference to speed laws as well as lens laws and the various other state laws, some of the dealers and jobbers would possibly be able to reap some benefit from your effort."

F. K. Levy, sales manager of the Inter-State Electric Co., New Orleans, says he will not be able to move his lenses until the Louisiana laws are enforced. H. William, of the Motor Car Supply Co., Chicago, attributes the overstock of lenses to the failure of the state to enforce its laws. He says:

Illinois Is Lax

"The first of this year there was a law passed that every car should have lenses, but the trouble is that our laws of this state are not rigid. When our state law went into effect we felt that there was going to be a great demand for these lenses, but as the months were going by we found to our disappointment that our state was the poorest of any in selling lenses. As we have salesmen traveling in the different states we find that these men traveling outside of Illinois bring in more business than the men traveling in our own home state. We, ourselves, are not overstocked on lenses, and are not worrying about our stock at this time."

C. D. Pettingill, manager of the G. Norman Baughman Co., Tampa, Fla., says his company stocked heavily when the Florida dimming law went into effect Jan. 1. Quite a few lenses were sold before the law went into effect, but after it became effective and the public saw there was nothing to it they lost interest in the lens question. The law did not require the use of lenses, but merely required that motorists should dim their lights when approaching other cars. He says:

"It is going to be a difficult matter to sell lenses through legislation in our opinion. They should be used, however, and could be sold more or less through the appeals to the gentlemanly side of the driver or from the courtesy standpoint. It might be well, and undoubtedly would be, to start a campaign appealing to the decency of the motorist in advocating the use of lenses.

"There are a few motorists who can be classed as road hogs—those who have absolutely no regard for the other man's rights or privileges, who do not know what the word privilege means, but take a sort of pride in riding roughshod over the rights of others. There are some few motorists that when in town refuse to dim their lights, but on the other hand equip their cars with the brightest headlights possible and who do not think it necessary to dim and who will not do so.

"The motorist who might be inclined to be courteous, and who would be inclined to obey the law, if he finds that, after dimming his lights, the other man will not do so, then wants some protection, and hence is driven to adopt the same measures as the other ones—that is, use bright headlights, so that in the event he meets someone who will not grant him the courtesy of dimming, he can in turn leave his headlights on to discomfort the other driver as much as possible."

Theo. Bass, of the National Electric & Auto. Supply Co., Peoria, says it seems that a lens salesman calls on him every day with a new lens. He says, however, that he has kept away from all but the advertised and popular lenses and because of that fact has had no trouble in his territory.

The fact that some jobbers and dealers may have stocked up with lenses that weren't sufficiently advertised may have been one reason why their goods failed to move. In a field such as the lens field, where there has been quite a number of products in keen competition, it is hardly possible that any goods at all could be moved unless they were brought before the public by proper advertising.

T. M. Brooks, of The Auto. Supply Co., Chicago, says his difficulty with lenses is doubtless due to the fact that the laws are not enforced, and that the owners won't buy unless they have to.

Canadian Situation Better

A word from Canada may be interesting. It is from A. M. Bottcher, buyer for Hyslop Bros., Ltd., Toronto, one of Canada's largest jobbers. He says: "We are not overstocked with lenses, as we have found them to be good sellers. Our main difficulty has been in securing shipments in ample quantities to take care of current requirements.

"We have gone into this matter with other jobbers here in Canada, and the impression gained is that when any overstocking occurs, it is due to the jobber handling several lines. It is necessary to stock a variety of sizes in order to take care of the different size headlights. We are concentrating on one lens and are having good success with it."

Ohio Laws Are Dead

H. M. Dine, of the Dine DeWees Co., Canton, Ohio, says his difficulty is due to the failure of the state to enforce its laws. He says all Ohio jobbers are overstocked on lenses. He says it would help if there were an agitation to have all states agree on lens specifications, and enforce a uniform law.

Didn't Buy Many

E. A. Bowman, of the E. A. Bowman Co., Detroit, says he is not overstocked with lenses because he didn't buy many. Bowman has always been a cautious buyer of goods, so he states. He says that when the lens salesmen approached him and told him that because of the coming law and the prospective advertising of the manufacturer there was going to be a big sale of lenses he put in a small stock.

He says that this is his practice with any accessory. He puts in a small stock, paying a higher price for it. Then if the goods move he orders more, but in case the goods do not move he is not stuck with a large stock. That was his experience in the lens situation.

No Pennsylvania Law

George B. Shearer, of The Gaul, Derr & Shearer Co., Philadelphia, is another who is overstocked on lenses. He says: "The early part of last summer there was quite a large demand for lenses, stimulated by the laws that had just recently been passed in Delaware and Maryland, and we ordered rather heavily to meet this demand. Unfortunately in Pennsylvania we have no law requiring the use of lenses, and there is no hope of getting such a law until the legislature meets the early part of next year. Dealers generally seem rather reluctant to stock up on headlight lenses for the reason that so many different sizes are necessary to have a stock to meet all requirements."

From these experiences of jobbers it is not difficult to see that much of the present situation was occasioned by the reliance that was placed on the effect of headlight laws. *It was a situation no one could foresee. There was every reason to expect that laws would be enforced if legislatures were going to the trouble of having them passed. Just why they were not enforced no one seems to know, and perhaps it would be difficult to find out.*

Need for Action

However, the situation exists. The jobbers and dealers are stocked with lenses, the laws are not being enforced, the goods must be moved, there should be a sale for them in the future. The question is how to do it.

The headlight glare question probably will always be with us. There will consequently always be a market for headlight devices or lenses which regulate glare. But the sales appeal may have to change even though the goods be always the same.

One thing is certain: Laws may sell lenses. Merchandising will sell them. Both law and merchandising would be a powerful force, and in the temporary absence of laws the solution of the problem seems to lie in greater sales effort and a new merchandising appeal.

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Recouping War Losses

WITH THE FARM TRACTOR

The story of how two Ohio dealers tagged opportunity six weeks ago and have made strides in the Buckeye tractor field

COLUMBUS, OHIO, May 27—When G. B. Erhman and E. H. Bryant, composing the Bryant Automobile Co., Cleveland, had a talk some two months or more ago about the outlook in the automobile business, which didn't look any too good at that time, and when Erhman advised Bryant to go to Detroit and get a job, opportunity was standing just outside the door knocking for entrance.

Both had been watching the development of the tractor industry and both were wondering if it were not possible to take on the tractor and thus re-animate a business which promised to be seriously hurt by the war.

The problem was to get into it in such a way that success and permanency might be assured. The project to appeal to the patriotism of Ohio farmers for a distribution of tractors to assist in agriculture already was broached, and Erhman's suggestion to Bryant had certain possibilities in view.

Seeking Opportunity

So Bryant went to Detroit, bought a suit of overalls and applied for work in the tractor factory of Henry Ford & Son. He thought he might be able to do such work as would attract attention to him and mark him as a man competent to do bigger things than run a lathe. Then, too, he argued with himself, opportunity may wander through the factory and I may be able to reach out and tag her.

How satisfactory a workman Bryant proved to be in the factory it is impossible to say, but when it became apparent that the Fordson tractor would be considered seriously for the projected Ohio distribution, he walked into the office, greasy overalls and all, told who he was and suggested that he might be of some service. Whether because of the record he had made in the factory or whether the powers that be were impressed by the assurance of the man, whatever the reason, he was given the chance to show what he could do. *He had tagged opportunity. This was on April 9.*

The following day he was given a letter by Henry Ford & Son, addressed to Governor Cox of Ohio, specifying just what the Ford company could and would do to put 1000 Fordson tractors into the State of Ohio. Bryant took the train for Columbus, called on the governor, presented his letter, assured the governor that his company was ready to relieve the state of all responsibility in the matter of distribution of the tractors, that the deal probably would finance itself and that all he needed was the governor's sanction to get on the job.

By April 16 the deal was closed. On April 17 the Bryant Tractor Co., Columbus, came into tentative existence, an office was opened temporarily at 128 East Gay street, the announcement of the contemplated distribution was made through the papers of the state, and the first car of seven Fordson tractors was shipped from the factory at Dearborn to the Bryant Tractor Co., Cleveland, on April 24.

Since that date better than an average of three cars of tractors has left the factory every day for points of distribution in Ohio. To-day over half the 1000 tractors destined for Ohio have been shipped and for the most part have been delivered to the farmers.

The wonderful thing about this is that it has been accomplished without capital, without profit and without pull or intrigue.

A paragraph is made of the foregoing statement purposely, for the reason that it is a categorical denial of many stories which have gained circulation.

No Pull at All

A similarity of name in the case of E. H. Bryant, of Cleveland, Ohio, and E. R. Bryant, of Dearborn, Mich., has given rise to the story that nepotism was responsible for the success which has come to the Ohio company. E. R. Bryant of Michigan, who has tried to secure control of the tractors and equipment for Michigan, is a relative of Henry Ford; E. H. Bryant of Cleveland claims no such distinction, and does not even know Bryant of Michigan personally. The coup he has achieved is due entirely to the fact that he saw the chance and got on the job, and not at all because he had a pull, either family or political.

Nor is there any profit for the Bryant Tractor Co., nor for anyone else, in the Ohio deal. The tractors are sold to the farmers at $750, f.o.b. Dearborn, Mich.—just what they cost. As a matter of fact the money paid for the tractors is not even handled by the Bryant Tractor Co. Every check in prepayment for a Fordson tractor, whether it comes direct from the farmer himself or whether it is a check from some local agent who is financing a carload, is made payable to the Central National Bank of Columbus, is deposited there and held in escrow until the tractor or tractors have been delivered, whereupon it is forwarded to Henry Ford & Son.

The only present connection which the Bryant Tractor Co. has with the deal is through a contract which gives the company the state agency for the Oliver No. 7 gang plow, which is being sold only because of the sanction of Ford.

Sells Plows

This plow is sold to the farmer at $140, f.o.b. Cleveland or Columbus, and is paid for in advance just as is the tractor. This price on the plow, which is being charged the Ohio farmers, is likely to be established as the price which will pertain universally on the special Oliver No. 7 plow.

The Bryant Tractor Co., of course, has assumed general direction of the distribution in the state and has dictated how, when and where tractors should be shipped. As was inevitable, the orders which poured in for tractors came in overwhelming numbers from individuals. The Bryant Tractor Co. saw at once that individual shipments and deliveries would cost money and time, so a circular letter was sent to every automobile dealer who had manifested any interest in the matter, requesting that the dealer get after the prospects at once.

As a result of this policy practically every car of tractors which has been shipped into the state, excepting two or three of the first installment, has gone to an automobile dealer who has financed the deal and who has distributed the machines.

In order that the dealers who have assumed the responsibility of doing this may be protected in a service way the Bryant Tractor Co. has given each of them an agreement.

Erhman, of the Bryant Tractor Co., says that it would have been impossible to have put the distribution across so quickly and successfully had there not been a body of men who were accustomed

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to stocking in quantity, paying sight drafts attached to bills of lading and taking a chance, namely, *the live, energetic, progressive automobile dealers of the state.*

This is the more remarkable too because they responded to the appeal, business and patriotic, without hope or expectation of profit.

"We are going over the top," says Bryant. "If on this first distribution we put only 1001 tractors into the state we shall not care, for we will have gone over the top. It's the future we are looking to. Not only shall we have put the Fordson tractor on the map as far as Ohio is concerned, but we shall have convinced the automobile trade that there are wonderful possibilities in the tractor business and that the automobile dealer is the one man to handle it. It would have been impossible to have done what we have without the assistance and co-operation of the automobile dealers, and now that they have demonstrated what it is possible to do most of them will stay in the tractor business.

"We shall handle only such power farm equipment as receives the approval of Henry Ford," says Erhman.

"Implement manufacturers are designing implements to be used exclusively with the Fordson tractors, at the request of Ford, and when they shall have received his approval they will be handled by the distributers of the Fordson tractors. Without such sanction they will not be available. There is no doubt that ultimately there will be a complete equipment, both of draw bar and belt machines, built especially for this tractor which shall have received the approval of the company, and this equipment the Fordson agents will sell.

"Furthermore, it will be sold just as the tractor is sold, sight draft attached to bill of lading, and as a consequence business methods will have been introduced into the farm operative equipment business, as far as tractor implements are concerned."

Motor Car Dealer Best for Selling Tractor

Tractor Maker, After Survey of Field, Pins Hopes on Automobile Men

"THE tractor business of the future will be handled by automobile distributers and dealers who have a special department for tractor and truck sales and service."

This is the conclusion of G. M. Matson, vice-president and general sales manager of the John Lauson Mfg. Co., manufacturers of the Lauson kerosene tractor, at New Holstein, Wis. Matson has just returned from a two months' business trip throughout the West and Southwest.

"The general tendency on the part of automobile dealers," said Matson, "is to take on a good truck and a good tractor as they have been quick to realize the heavy future demand.

"The same principle of sales that has been successful in passenger cars must apply to both tractors and trucks.

"Farmers have been and still are the biggest buyers of passenger cars. In fact, statistics show that practically 70 per cent of all the automobiles sold in the United States in 1917 went to farmers.

"The big feature that appeals to the automobile dealer is his opportunity of selling tractors on virtually the same overhead that covers the sale of passenger cars and trucks. Seldom will he need any more salesmen, and it is unlikely that an addition will be necessary to his service force. By handling these three lines now, he has a continuous business the year around with insured profits.

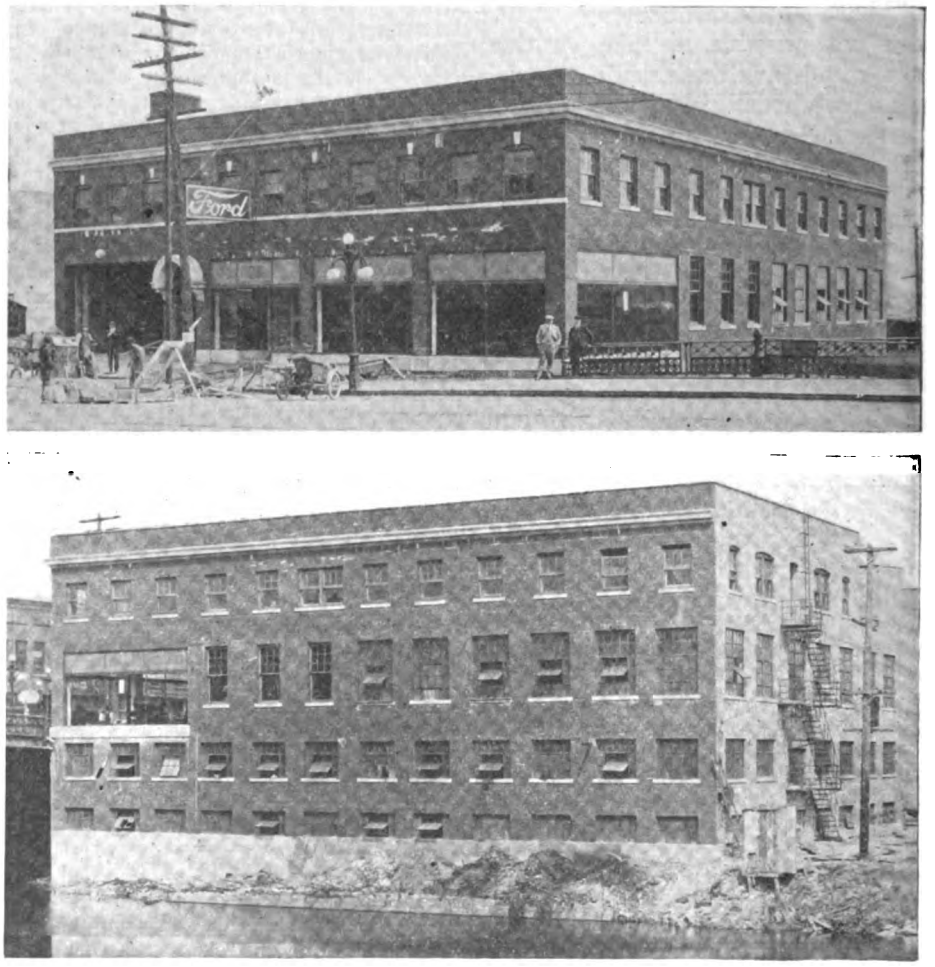
"Then, too, the automobile dealer has a service station in connection with his salesroom. This will serve tractor as well as passenger car and truck. It must be expected that the farmer purchaser will need occasional service in the way of adjustments or replacements. Hence this service feature of the automobile dealer is most attractive.

"The wise tractor manufacturer has adopted the principles that have proved successful in twenty years of manufacture and sale of automobiles. The automobile dealer is used to taking up shipments with bills-of-lading attached. **The automobile dealer is a cash buyer and a cash seller. It is necessary, to make the tractor industry successful, to embody these same sound business methods that have worked out so long in the automobile industry.**

"I have no criticism to make of implement dealers, but those who expect to remain in the tractor field have got to apply the experience that has proved profitable in the automobile industry and create a good tractor service department.

"The time is not far distant when all farm machinery will be sold on a cash basis and the farmer will profit by lower prices through the elimination of heavy collection expenses to manufacturers and distributers. **The manufacturer of tractors must do a cash business and so too must the tractor dealer.**

Builds New Home to Handle Tractors



Two views of the establishment of F. J. Blanding & Co., Lansing, Mich., which is going into the distribution of the Fordson tractor after official distribution proved not very satisfactory

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Mark 'Em Up!

THE DAY OF THE GIVE-AWAY HAS GONE IN SELLING USED CARS

"LET the dealer mark up his used cars over old-time figures to a point anywhere from $30 on a small car to $100 on a large car and he will make rapid sales if the cars are really worth it."—W. K. ARMSTRONG, HURLEY MOTOR CO., PHILADELPHIA.

By K. H. Lansing

MERCHANTS of all kinds in this period of watching leaks and keeping down overhead expenses are learning to avoid markdowns and frown away the discount beggar. To be intrenched in these strenuous war days one must make retrenchments, and there is no retrenchment just now in *underselling*, as many have discovered. The necessity for not falling below the list price on merchandise has become so marked a factor in the present business of some motor car dealers that they are emulating the man about whom we have all heard, who stood up so straight that he leaned backward.

There are plenty of reasons why the motor car dealer should stick to the list prices on new cars and wave away the grafting type of person who always is ready with an excuse for not wanting to pay the full figure for an automobile, or a truck, but now it has begun to strike home to some members of the trade that, while tariffs for living expenses, from necessities to luxuries, are being revised upward, there is more profit in *selling even used cars for what they can get for them than in taking what the prospect will grudgingly give.*

Sell Better Marked Up

It is the demonstration of a simple principle of psychology that a person will set a higher value on something he thinks somebody else wants and which soon will be gone from the market and his chances of getting it lost than on something he thinks will linger in the market indefinitely and which he can obtain for the mere reaching out and taking. Like most simple things of the kind, it is so very patent and evident that it is lost sight of as a principle by many, when it could be used to advantage.

Some dealers are arguing: Why grind prices on used cars down to make a few quick sales, especially, if, as is hinted, there may be a shortage in passenger cars owing to government limits on output of new cars? This is a period of transportation straits, and passenger cars for business purposes must be used, and if there is even a comparative scarcity of new cars, then the logical result will be an increased demand for used cars.

Demand Strong

This increased demand for used cars already has arrived in Philadelphia. A trip up and down "Automobile Row" recently adduced the evidence that the used car business of dealers in the leading makes of motor cars has been, in most cases, by far the larger part of their trade since winter and that April and thus far May have proved the best months in some time. Some dealers say that their turnover of used cars has been more rapid than at any previous time, and as for the "gyp—"

Well, there are always enough "old blisters" and "crocks" fit only for the jitney traffic to keep him going, but this year he is reaping a harvest in some really good cars that he snapped up before it was realized that there was no necessity for sacrificing them to him in order to get floor space for better ones, but this time is passing, if not already gone.

A dealer in Philadelphia who has learned the value of not only sticking to list price on new cars, but of actually *marking up prices on used cars*—that is putting thereon the value that he really thinks the purchaser should pay, instead of sacrificing for a quick turnover—for turnovers in used cars now are quick anyway—is Samuel Earley, of the Samuel Earley Motor Co., who handles the Mercer and National.

"Early in May, last year," said Earley to a representative of Motor World, "I had thirty used cars in stock. To-day I have not one and I sell them as fast as I get them. There are positively no obstacles to the dealer in the used car end of the business if he handles used cars for which he can vouch, particularly used cars of the make he deals in.

"The turnover is remarkable. *There is no need to fall below what a used car actually is worth in price to make room for others,* for they don't occupy my floor space long. *I mark prices on used cars up, compared with what we had been selling them for previously, and I SELL THEM TWICE AS FAST AT THE HIGHER PRICE.*"

In similar vein spoke W. K. Armstrong, sales manager for the Hurley Motor Co., handling the Jeffery and Nash.

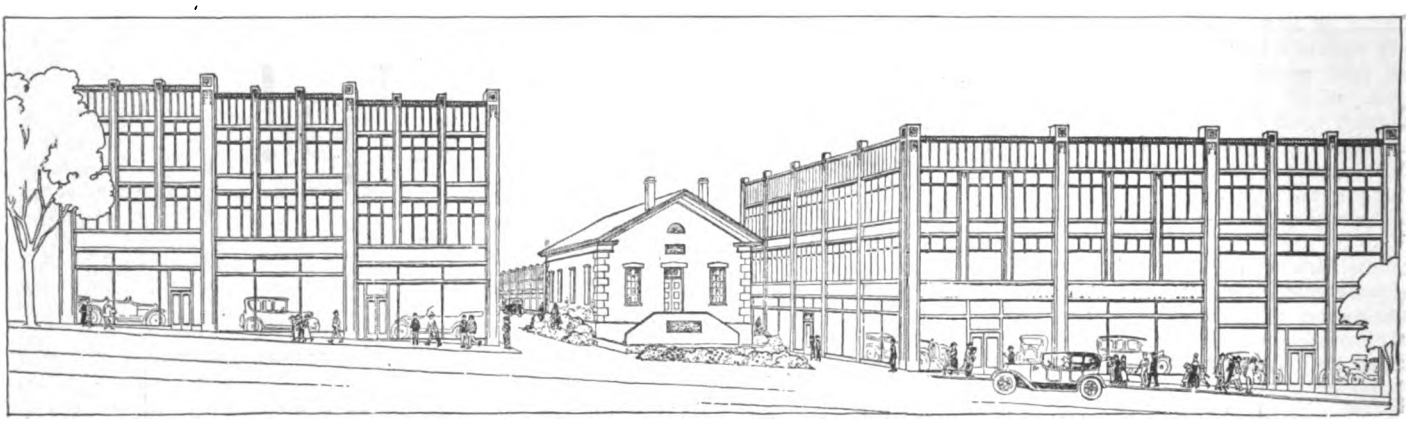
Psychology of Buying

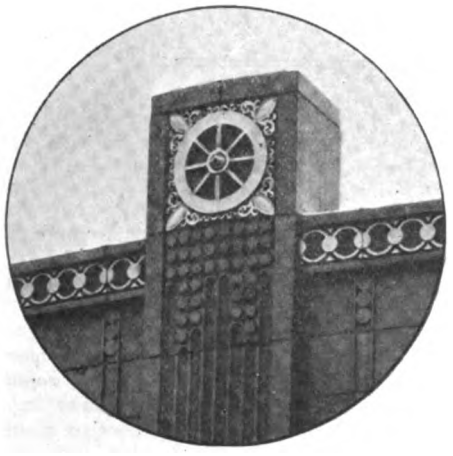
"By putting the price on our used cars higher than formerly," said Armstrong, *"I dispose of them much easier.* Somehow people seem to want them more at the higher prices than at the old figures for which we used to let them go. And it is a most noteworthy fact at this period of the business customers would rather have a rebuilt high-grade car than a cheaper make, brand new.

"The motor car purchaser has tried them out and, like the buyers of typewriters and other machines, has found that there is more value in a 'factory rebuilt' machine of workmanship than in a new machine of skimped manufacture made to sell cheaply. At least that has been my experience of late. The purchaser seems to realize that he is getting value when a dealer won't let a used car go mainly to get rid of it. I believe now that a purchaser would have his suspicions, since this new plan is in effect, that if he got a car for as low a figure as used to be allowed him, the dealer was working off a 'blister.'

"Let the dealer, for instance, mark up, over old-time figures for used cars, the price to a point anywhere from $30 on a small machine to $100 on a large one and he will make rapid sales if the cars really are worth it," added Armstrong. "The day of the give-away has gone."

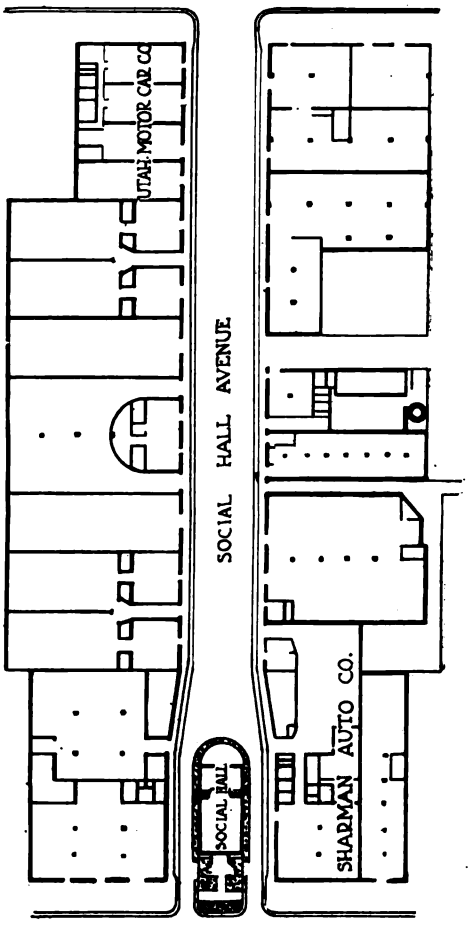
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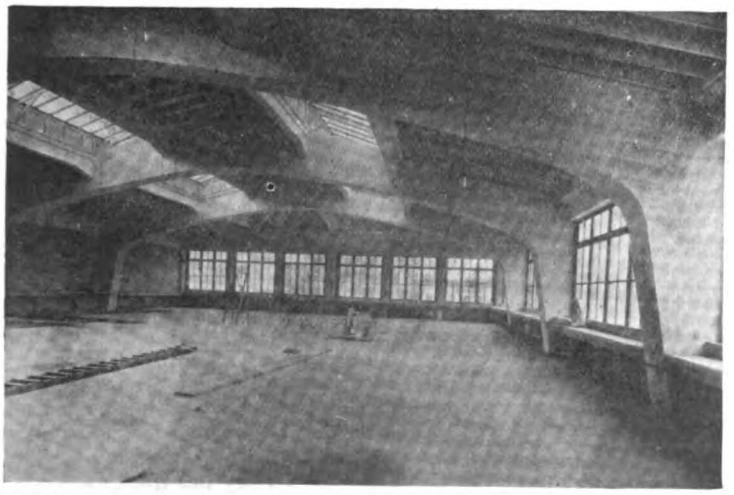


MILLION DOLLAR ROW
in Salt Lake City

THE million-dollar motor row shown on this page is being built in Salt Lake City by the Mormon Church, whose old Social Hall stands in the center of the upper picture. The small round picture shows a detail of the decorations. The photographs below show an exterior and the interior of a salesroom and a service floor. Note the heavy arches which make posts unnecessary. It is intended that the row shall be exquisite in appearance and provide quarters for a number of dealers









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STATISTICS INDICATE

The Passenger Car Dealer

Is Best Truck Dealer

¶ Exclusively truck dealers are few and there are many advantages in favor of the man who has learned the business of selling cars.

THE dealer who contemplates the truck sales field may wonder whether he is eligible as a truck dealer. He may wonder what the conditions are and how truck sales were handled in the past.

The manufacturer may similarly ponder. He may wonder whether it is best to place his agency with an existing passenger car dealer or whether he should create an exclusively truck agency. He may ponder on the subject of branches and whether they are profitable financially or from a development standpoint.

Setting aside all theories and opinions, a study of the truck field today throws some light on this subject. The figures indicate:

1. *The most logical truck dealer is the passenger car man who already has his sales and service organization and knows the automotive field.*

2. *Exclusive agencies exist almost entirely in the big cities—when there are any such agencies.*

3. *Only the biggest and financially strongest manufacturers have gone after exclusive agencies.*

Tabulated statistics regarding truck dealers are shown in tables in connection with this story. There are in the United States 5524 truck dealers, which includes branches and all other truck selling organizations.

Taking the country as a whole, there are 5¾ passenger car dealers handling trucks to 1 exclusive truck dealer and, as we go from the larger cities to the smaller, this ratio becomes larger.

In cities over 17,000 population the ratio is only 3 to 1, but in cities between 5000 and 17,000 it is 11½ to 1, and as we go into the towns below 5000 population we find that there are 16½ passenger car truck dealers to 1 exclusive truck dealer.

There are 823 exclusive truck dealers and 4701 passenger car truck dealers; of this 823 we find that 258, or 31 per cent, are in 24 principal cities; 362, or 44 per cent, are in 293 smaller cities, while 203 dealers, or 25 per cent, are in the small towns of the rest of the country.

In only eight cities of the United States the exclusively truck dealers outnumber the passenger car truck dealers. These cities are shown in the following table:

Cities	Population	Combination	Exclusive
New York (Manhattan)	2,682,977	16	31
Baltimore	558,485	9	13
St. Louis	687,029	13	14
San Francisco	416,912	17	19
Birmingham	132,685	5	6
Detroit	465,766	8	17
Newark, N. J.	347,469	8	15
Rochester	218,149	11	12

In the larger cities where life is so rounded as to include manufacturing, large retailing, transportation, baggage, express and marketing businesses, practically every large truck company has made an effort to secure representation.

This representation is divided. Where a small delivery car is concerned an effort is made to pair up with a dealer who handles a heavier truck successfully, and the dealer concentrates on the two non-competitive trucks—or sometimes three. This gives the dealer a line to supply all needs and permits him to expand his volume of business, increase his profit and become a more successful and desirable dealer for all of those whom he represents.

Rare in Small Towns

In the larger cities exclusive representation for a single truck is a rarity. The exclusively truck dealer will have three lines more often than one, and the preference for two over one is overwhelming, unless where a heavily financed institution, such as International, Vim or Republic, feels it necessary to put in branches and sub-dealers in order to make sure that adequate representation will be secured.

In studying the 823 exclusive dealers in comparison with the larger number of passenger car dealers, we find that 10 of the larger of these companies—there are 210 altogether—have 55 per cent of the exclusive agencies. They follow:

Names	Number
International	131
Republic	90
Vim	50
G.M.C.	43
Kelly	36
Federal	29
Garford	25
Autocar	20
Little Giant	20
G.V.C.	13
Total	457

These figures seem to indicate that even in the larger cities truck manufacturers seek passenger car connections where such dealers can demonstrate their ability to sell trucks and give service in a proper manner. It is only where the passenger car effort would overshadow and dwarf the truck selling effort that the large truck manufacturer, even when he can pick and choose, seeks an exclusive dealer.

Very often the manufacturer establishes and finances his own branch or aids financially some established dealer, extending to him also the advertising co-operation and selling aid that is positively necessary to keep him in business.

When it is considered that in only eight cities of the United States do the exclusive dealers outnumber the passenger car and truck dealers, the following deduction seems logical:

Only the very large cities can support substantial exclusive truck agencies.

The larger manufacturers—the only ones who can support nation-wide, independent representation—favor combining the passenger car and the truck representation when it can be secured under favorable circumstances. In these larger cities the figures show an overwhelming preference for combined representation where the truck dealer is exclusive, two, three and sometimes four truck lines being represented in one organization.

A reason for the preponderance of combination dealers over exclusively truck dealers seems to be that in the case of the passenger car dealer the

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manufacturer finds an already existing organization. It is established and therefore generally financially sound. It has sold cars, given service on them and has undoubtedly installed the necessary equipment and labor for further service.

It is known in its community. It has sold passenger cars to business men, who are the only buyers capable of purchasing delivery cars or trucks. It has been compelled to learn merchandising and advertising methods and, if successful, has proved itself capable in salesmanship—a faculty more vitally necessary in handling motor trucks than in selling passenger cars.

No Truck Dealers Exclusively

To cite a few examples, there are no exclusively truck dealers in such towns as:

Cities	Population
Mobile, Ala.	51,520
Colorado Springs, Col.	29,078
Pueblo, Col.	47,295
Bristol, Conn.	9,527
Danbury, Conn.	20,234
New Britain, Conn.	43,916
Augusta, Ga.	41,040
Boise, Idaho	17,358
Moline, Ill.	24,199
Burlington, Iowa	24,324
Bangor, Me.	24,803
Brockton, Mass.	56,878
Lansing, Mich.	31,229
Duluth, Minn.	78,466
Albuquerque, N. M.	11,020
Binghamton, N. Y.	53,082
Troy, N. Y.	77,738
Watertown, N. Y.	29,384
Lancaster, Pa.	47,227
Newport, R. I.	27,149
Sioux Falls, S. D.	14,094
Galveston, Tex.	36,981
Waco, Tex.	26,425
San Antonio, Tex.	96,614
Charleston, W. Va.	22,996
Cheyenne, Wyo.	11,320

In Ohio, taking 10 cities with population in the neighborhood of 20,000 in alphabetical order, beginning with East Liverpool and ending with Steubenville, there are 34 passenger car truck dealers and *not one exclusively truck dealer.*

In the State of Massachusetts, beginning at Reading, and also in Michigan, taking towns between 5000 and 17,000 and going alphabetically down through the list, we find 39 towns containing 64 combination dealers and only one exclusive dealer. The latter is located in Owosso, Mich., a town of 10,000 population.

Exclusive Dealers Few

A similar situation in this class of cities is found in Minnesota, Mississippi and Missouri. There are 59 combination dealers to three exclusive. In Ohio, in a class of cities between 5000 and 17,000 population, taking 25 in alphabetical order, beginning with Cuyahoga Falls and concluding with Van Wort, there are 42 combination agencies and not one exclusive truck agency.

Taking states and cities alphabetically and beginning with Bolton, Tex., and going alphabetically down through to Brattleboro, Vt., there are 20 cities which have no exclusive truck dealer, though trucks are sold in 29 passenger car salesrooms.

Population of cities	Cities having truck dealers	Car-truck dealers	Exclusively truck	Ratio
17,000 and over	320	1771	620	3 to 1
5,000–17,000	578	1036	89	11.5 to 1
5,000 and less		1894	114	16.5 to 1
Total		4701	823	5.75 to 1

However, in Montpelier, Vt., there is one exclusive dealer and, continuing on down through the list and through Virginia, there are 12 cities with 22 combination dealers and no exclusive dealers.

Again there is an interruption in this sequence by Hoquiam, Wash., a 10,000 population town, which has one combination dealer and one exclusive dealer.

Continuing down through the list of 26 cities from Bluefields, W. Va., through Wisconsin and Wyoming, there are 46 combination dealers and *no exclusive truck dealers.*

Michigan, the greatest motor car manufacturing state, has 29 cities in the 5000 to 17,000 class in which trucks are sold, *and there is no exclusive truck dealer.* There are in these 29 cities 50 combination dealers, the only city sheltering an exclusive dealer being Owosso, previously referred to.

Old Beliefs Discarded

In years past, exclusively truck dealers were by some considered a necessity because it was believed that in order to sell a truck an organization had to be composed of transportation engineers, statisticians and salesmen of a peculiar breed.

While a different factor is necessary in the ordinary selling organization, this great variance is not necessary, according to the statistics that have been cited. With the large number of combination dealers in existence, it does not seem probable that all of them, or even a small per cent of them, have any greater array of transportation engineers and statisticians.

The more the dealer can go into this transportation engineer and statistician proposition the greater becames his sales possibility, because it enables him to analyze the field and to open up lines of selling that are not obtainable through less aggressive methods.

The same thing, however, might be said of selling passenger cars or any other commodities. The more science there is applied to the selling the greater will be the results. The only handicap comes when the science becomes an enormous overhead and eats up the profits that are derived from the sales it makes.

Overdoing Science

There have been dealers who have gone so far into modern merchandising and the science of business selling that their activity has centered largely around the scientific side and they have paid so little attention to watching leaks and taking care of the profits that their earnings have not been sufficient to pay the expense of the organization.

Sometimes in those cases the observer will state that the old hard-headed business methods are best. Old hard-headed business methods are good, but they are much better when tempered with science, and vice versa; science is good when tempered with old hard-headed business methods; neither one can best stand alone.

There is, however, a great deal in the old hard-headed business methods that is scientific but it is not so recognized because of the atmosphere in which it is found.

Distribution the Problem

It does not necessarily follow that the men who are selling upholstery on Broadway and Michigan avenue can be truck salesmen, but it is a certainty that any man who is well founded in the fundamentals of selling should be able to merchandise any product once he is given a chance to acquaint himself with it.

The motor truck industry's problem is distribution. The sales manager of a truck company must first secure enough distributers to take enough trucks to underwrite his estimated annual production. In case he works only through large distributers, the distributer's problem is then to secure dealers to whom he can pass out the product.

Distribution must be nation-wide or else the vehicles in operation through their self-advertising will localize the manufacturer's distribution, and in acquiring national distribution up and down the country in towns of all sizes *the only logical dealer seems to be the passenger car man.*

He is there, he is organized, he is equipped, he needs additional volume, and he is waiting for the product.

Should Investigate Truck Field

The passenger car dealer who has not investigated the truck situation is passing up a good thing.

Right now every dealer is in need of additional volume to help carry his overhead and increase his profits. If he can see how he can get it out of passenger cars that is probably the easiest thing for him to do, but if he can't get this necessary volume out of passenger cars, he must take it out of something else, and a truck is the product which is most closely allied with that merchandise upon which he has built his business and out of which he has made his profits during past years.

He should shake off old thoughts, old methods, and take on new goods. He should become a combination dealer—AN AUTOMOTIVE MERCHANDISER.

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THE LONG DISCOUNT TRUCK

The Will-o'-the-Wisp

It is all right if rightly used and if it is justified, but—

By Ray W. Sherman

"THE Sayanna truck is a fine truck, Mr. Reilly," warbled the road man for the Highman two-tonner, "but we have a truck that is just as good and——" the Highman lad went strong on the "and"—"we can give you much better discount terms than you are getting.

"A lot of former Sayanna dealers have taken on the Highman. The Sayanna is a good truck, BUT you dealers are in business to make money, and if you can get a discount of 40 or 45 per cent isn't it more profitable to you than selling at almost half that profit? What about it?"

"You have a fine argument," replied Reilly, who had recently added the Sayanna truck to his Sennett car agency, "but what I'm interested in is my profits two or three years from now. Whatever agencies I take and whatever plans I make must be based upon what they will do for me in the future. If I build for this year only I am running on a short-term lease of life—and am liable to quit any minute that Old Landlord Time calls the turn on me."

May Lead, But—

"That's just what I contend, Mr. Reilly," shot back the Highman representative. "We have a truck that is going to be one of the leaders in the country. It——"

"It isn't a leader to-day."

"I know it may not be, but it is going to be!"

"You don't advertise very much," declared Reilly.

"I know we don't—but we're going to."

"When?"

"Well—ah—you see, I'm not handling the advertising end, but I happen to know that the company has big plans under consideration."

"Your price is high."

"Surely it is! But the truck is good and the discount is big. The price is justified. It also gives you a chance to make good trades——"

"I don't want to make good trades!" Reilly snapped out the words. "I'm in business. I'm not running a lottery. People can find out what my prices are by looking on the price tags. And they can find what I'll give for a used car by going out and letting my used car man make an estimate on what it's WORTH!"

"But wouldn't you like to know that in case you made a poor guess you wouldn't lose money?"

"We quit guessing a long time ago," laughed Reilly. "And, furthermore, we don't try to kid ourselves. We have a bookkeeper and cost man who won't let us. He makes us feel ashamed of ourselves sometimes because of the things we try to do. He surely keeps us in the straight and narrow path."

"But—Mr. Reilly! On this truck you can make twice as much every time you make a sale as you can on the Sayanna. The discount is bigger and the price from which this discount is taken is higher, which makes the profit bigger. The truck is a good seller, it is made of good stuff, and you would have a fine business——"

"I know all about that!" Reilly retorted. "You people have been in business just as long as the Sayanna people have, but you haven't made the same progress. You haven't advertised and put your truck over. It hasn't the same standing throughout the trade and the business world. You have always thought progress could be made by an excessive price and long discounts. You have merely demoralized business and tried to knock the bottom out of everything. You have not a strong line of dealers. You have kidded a lot of dealers into your agencies through this big discount argument, and then you have failed to support them with advertising and intelligent sales work, and the result has been that most of them haven't stayed with you very many years.

"You have hurt the truck business more than you have helped it!"

Must Look to Future

The Highman man started to say something but Reilly got started first—and a start is half the conversation: "In selling trucks or cars a dealer must consider his future. And he must not forget this, that the harder a thing is to sell the more it costs to sell it, and the fewer the sales are the more the overhead eats into the profit on each individual sale.

"I have the Sayanna truck. It has done a lot of work to put itself on the market. It is well known. There are lots of them running around. Business men know they are good. It is easy to sell them. The repeat business—a mighty important factor—is just like finding money. They are good and don't require a maximum of service. Their parts prices are reasonable. The price is low. I know the discount isn't as big as it is on some other trucks—yours, for instance—but I turn my money over rapidly and I'm making a good profit.

"Furthermore, I am building for the future. I do some advertising myself, and it merely adds to the sales lubrication that has been provided by the company's advertising and reputation. If I take on a truck, such as yours, that is not well known and well advertised, I might be able to put it across through my own reputation, but I would have to do it by spending my own money for advertising and promotion work. A small town man couldn't do it. I might be able to, but *it would be a hard job—and in the end I might find I had been working on the wrong track.*

Price Excessive

"Of course, if two trucks were of equal merit and the discount on one were higher than the discount on the other, the one with the higher discount would naturally be a better proposition. But in order to make your discount long you have made your price high, and this makes selling difficult. Furthermore, your price is so excessively high that it makes it possible for a discerning buyer to compare the money value in it with such a truck as the Sayanna.

"It is much the same thing as the passenger car industry has gone through. In the old days there were all kinds of discounts. They used to run up toward 50 per cent. But when buyers began to get wise to car value it was necessary for the manufacturers to pare their prices down, and the result was that one of the big cuts came in the dealers' discounts.

"With those old-time long discounts dealers used to make foolish trades, and that is one of the things that put the used-car business in the deplorable condition it is in to-day. And then when the discounts came down the dealers didn't know enough to revise their trading and so we have lost millions of dollars as a trade.

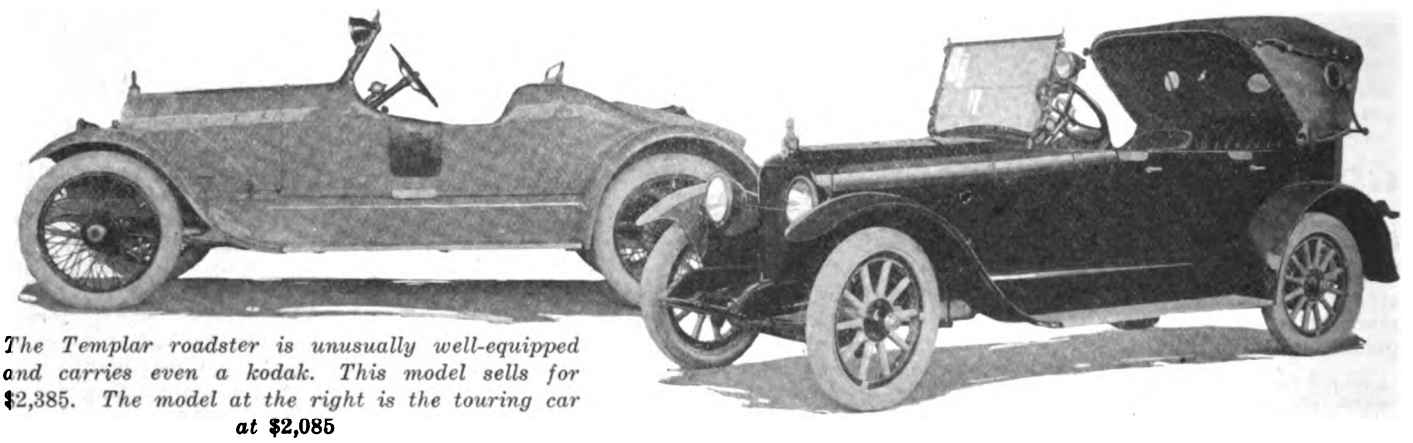
"The same thing happened in tires.

(*Continued on page* 45.)

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High Efficiency and Low Maintenance Aim of Templar Four

Four Body Styles and One Chassis in the Line



The Templar roadster is unusually well-equipped and carries even a kodak. This model sells for $2,385. The model at the right is the touring car at $2,085

WITH low maintenance cost and high efficiency in view, the Templar Motors Corp., Cleveland, is concentrating on what may be termed a foreign type of small-bore, long-stroke four-cylinder car. The chassis was first revealed at the last New York show and the company is now accelerating production.

Four types of body are standard, the five-passenger touring selling at $2,085, the four-passenger sportette at the same price, four-passenger victoria, $2,285; and two-passenger touring roadster, $2,385. The chassis alone sells for $1,850. The bodies are finished with twenty-seven painting processes and a number of standard color options are provided. On the touring roadster an aluminum body is used. The windshields are sloping rain vision types equipped with cleaver. The upholstering and trimming are in hand-buffed leather. The doors have nickel plated double handles, straight bar outside and curved lever inside. They are mounted in invisible hinges and equipped with pockets and leather hand pads.

One of the features of the Templar car is its complete equipment. This even includes a compass and a folding pocket kodak. A list of the equipment provided on the different cars is given herewith.

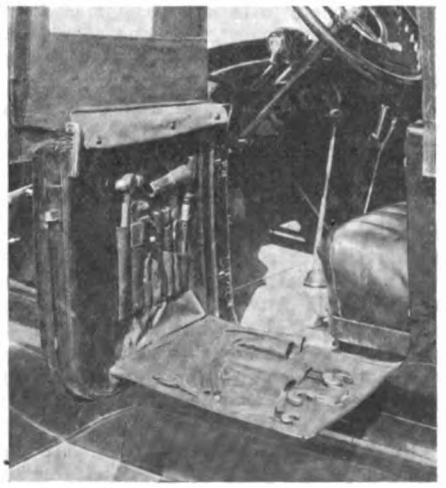
Five-passenger Touring and Four-passenger Sportette

- One-man "Never-Leek" top.
- Door-opening curtains.
- Johnson plate glass rear window.
- Macbeth-Liberty lenses.
- Electric horn.
- Kellogg tire pump.
- Tire gage.
- Windshield cleaner.
- Motometer.
- Petry muffler cutout.
- Warner Auto-Meter.
- Keyless clock.
- Spotlight.
- Inspection lamp.
- Ammeter.
- Clum switch and lock.
- Oil gage.
- Copley primer.
- Tool kit.
- Four cord tires and tubes.
- Natural wood wheels.
- Five Parker rims.
- Wire wheels $100 extra net.

Two-passenger Touring Roadster.

- Detachable top.
- Warner Auto-Meter.
- Electric horn.
- Motometer.
- Keyless clock.
- Kellogg tire.
- Tire gage.
- Petry muffler cutout.
- Windshield cleaner.
- Spotlight.
- Inspection lamp.
- Ammeter.
- Copley primer.
- Macbeth lenses.
- Johnson plate glass rear window.
- Stanwood safety step-pads.
- Tool kit.
- Clinometer.
- Compass.
- Folding kodak
- Six Houk wire wheels.
- Six cord tires and tubes.

Standard color options on the touring and sportette are Valentine's Tiffany Bronze, light Wine or Allegheny Blue. Fenders, chassis and splash guards are black enamel. Wheels are natural wood finish. Striping is done only when color, size and location are definitely specified. Monograms or initials are put on when requests are accompanied by scale drawings.



Tools are carried in a pocket inside the front door

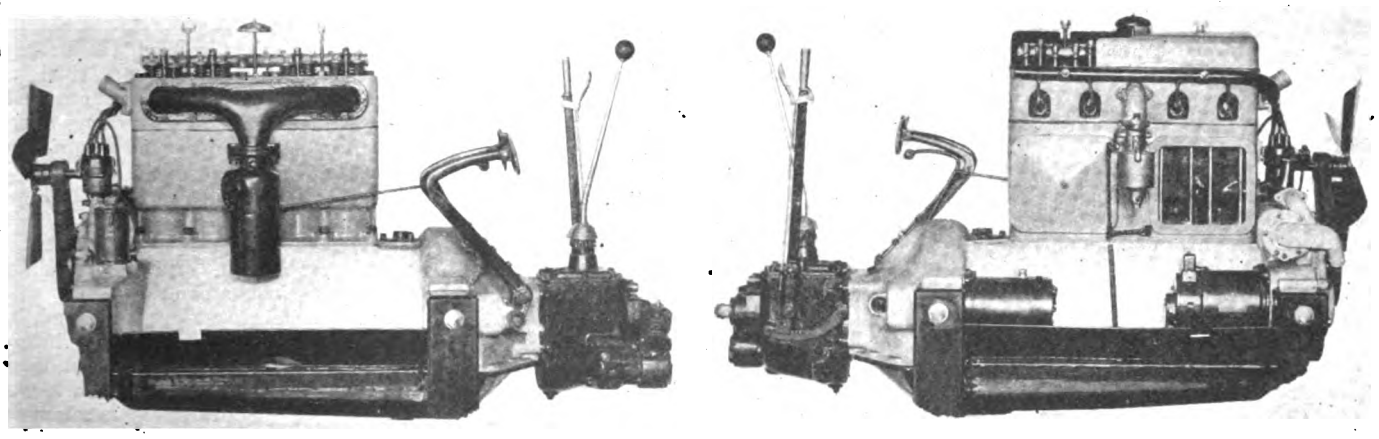
Standard color options on the touring roadster are Valentine's Rich Cream, Khaki Gray, Light Wine or Allegheny Blue. The fenders, chassis and splash guards are painted the same color as the body. The upholstery on the touring roadster may be either red or black leather. The wire wheels on the touring roadster may be either red, white or black. Black furnished unless otherwise specified. Other colors than standard are $50 extra net.

Mounted on a wheelbase of 118 in., the actual body length is 88 in., showing a relatively short length of powerplant which is in line with the purpose of the car to give economy and at the same time flexibility. The engine is built in the Templar shops and represents an up-to-date adaptation of overhead valve practice. Lightness in the powerplant has been sought by the extensive use of aluminum for the stationary parts and alloy steel for a large percentage of the moving parts.

The 3⅜ x 5½ cylinders are cast in a block, the head casting being separate, and the crankcase together with the flywheel and clutch housing cast separately in aluminum. The oil pan is pressed steel, galvanized, the cylinder block and cylinder head of close grain cast iron, and the head cover plate housing the rocker arm action is sheet aluminum. One of the unique arrangements of these castings is the direct communication of the crankcase with the valve mechanism on top of the cylinder head, thus permitting the crankcase oil spray to circulate around the rocker arms.

An unusual feature which results from this communication is the placing

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Both sides of the Templar engine, showing the neat design and accessibility of parts. Note the unusually large hot air stove for the carbureter

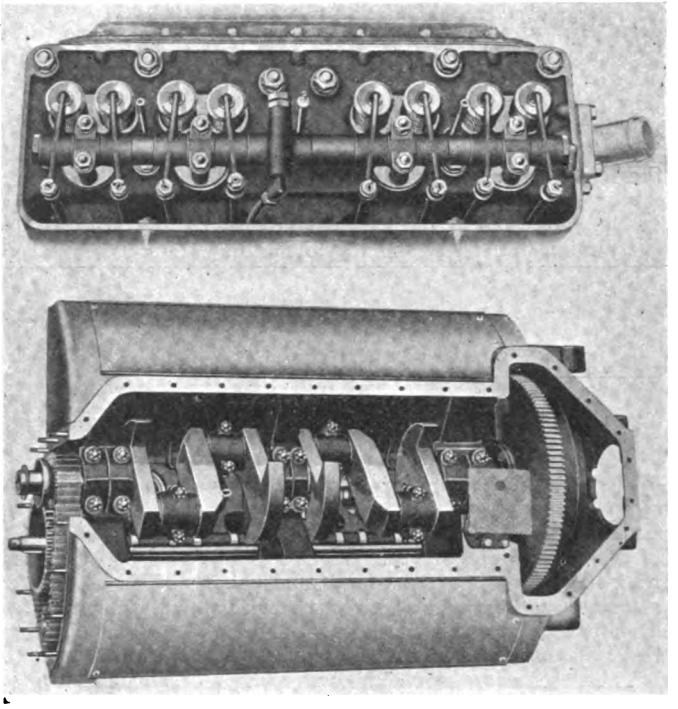
of a breather and oil filler at the top of the valve cover plate.

Cast iron pistons weighing 26 oz. are employed, the pistons being fitted with wrist pin bearings, bushed with Non-Gran bronze. The pistons are designed to prevent oil entering the combustion chamber, this being effected by the use of three concentric rings above the piston pin and one below. The lower ring is supplemented by a groove turned in the piston with holes drilled through the piston wall to give an efficient wiping device. A unique feature in the piston is the placing of the second and third rings in one groove. All four of the rings are 3/16 in. and are all hand peened by the Wasson process.

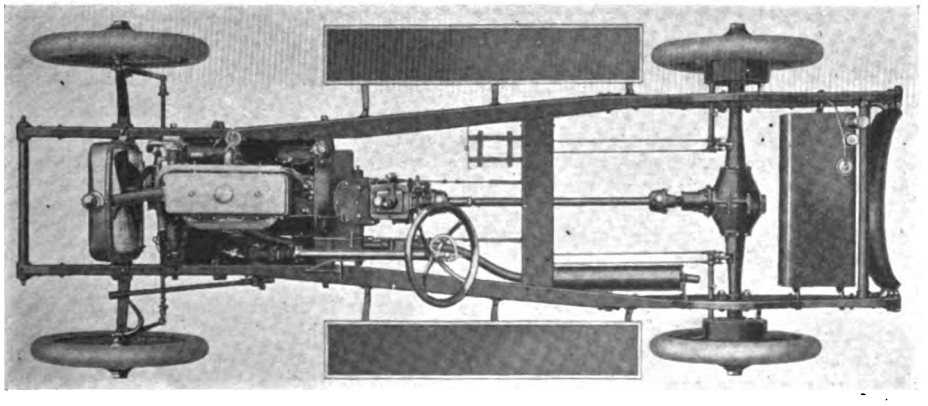
Nickel steel connecting rods are used, machined all over, with a sectional width of ⅝ in. and a depth of 1 in. The stock is 3/32 in. The I-beam section is uniform from top to bottom, the lower end having an inserted bronze backed bushing, 2½ x 1⅞ in. diameter. The caps are held in place with 2 7/16 nickel steel bolts.

Other than the opening between the crankcase and valve rocker arm mechanism, the valve drive is in accordance with usual overhead valve practice. The camshaft is machined from a solid forging and is driven by a Morse silent chain running in oil. The same chain drives the generator, giving a triangular drive with the generator so mounted that it may be moved to adjust the chain. Keyed to the camshaft is a helical bronze gear which drives a cross shaft, having on one side an aluminum centrifugal water pump and on the other, the ignition distributor. The valve action is transmitted from the camshaft in the usual manner by vertical push rods at the right side of the engine, and it is in the space surrounding these push rods that a clear way is provided through to the head.

Counter-balance weights are used on the crankshaft, these counter-balances being forged integrally with the shaft, which is a .40 carbon steel unit, balanced separately and afterwards in connection with the flywheel. These counterweights permit a relatively high engine speed, the output being 43 b.hp. at 2100 r.p.m., and the maximum engine speed being in excess of 2500 r.p.m.



The overhead valve mechanism of the Templar is a simplified design, the push rods being adjustable when the engine is running. A carefully counter-balanced crankshaft permits high rotative speeds without vibration. Below is a top view of the chassis, showing the clean lay-out



Lubrication is by pressure feed, the oil being circulated by gear pump to the valve rocker shaft, which is hollow, to the timing gears and thence to the engine bearings through the drilled crankshaft. Thus the lubrication of the overhead valve action is taken care of in two ways: First, by the pressure system in which the oil is fed through the hollow shaft into the valve rocker bearing and then by the oil vapor which comes up the side of the engine from the crankcase. The oil which passes through the hollow rocker shaft is carried to the front end of the motor flowing over the chain drive, sprockets and spiral gears, thence returning to the oil reservoir.

With the overhead valve mechanism

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operating in a bath of oil, quietness is assured. The valve adjustment is also readily maintained by means of a small hexagonal wrench which fits into the end of the adjusting screw on the end of the rocker arm, allowing any adjustment to be made while the engine is running.

The valves are tungsten steel, 1¾ in. diameter in the clear, interchangeable and equipped with double springs. No cages are used, the valves acting directly in the head, thus permitting of waterjacketed stem guides. The push rods are tubular steel, having ball and socket contact with the rockers, and roller contact with the camshaft.

A complete vaporizing system has been laid out to take care of present fuel condition. The air is preheated by passing through a stove surrounding the exhaust pipe, directly through a passage cast in the cylinder block and thence to the Zenith carbureter. The mixture is carried to the cylinders through the manifold cast integrally in the detachable head and entirely surrounded by the waterjacket and also absorbing some of the exhaust heat before reaching the cylinders. An air adjustment and starting primer is mounted on the steering column, and in addition there is an auxiliary primer of the Copley type for cold weather starting.

Ignition, starting and lighting are by the Remy two-unit system, both the generator and starting motor being mounted on the right side of the engine. The coil is mounted in close proximity to the distributor at the forward end of the engine, thus reducing to a minimum the loss of potential in the high tension circuit. Combined automatic and manual spark advance is provided.

Cooling is by centrifugal water pump in connection with a Fedders honeycomb radiator of 3½ gal. capacity. One of the features of the engine is the distribution of the waterjacket space, particularly around the valves. The plugs are also cooled due to the fact that they are mounted directly in the side of the head, passing through the waterjacket space in such a manner that the cooling liquid surrounds them practically entirely. The cooling jacket is also worked over the head in such a way as to give free circulation above the top of the combustion chamber.

A feature of the car is its easy acting Borg & Beck clutch. It is provided with a ball bearing release collar, and since it is of the single plate type requiring only a minimum of motion to secure complete disengagement, it has been possible to work out an exceptionally soft pedal action. The gearbox is a three-speed selective, Templar design unit, built with the engine. The gears are 5 per cent nickel steel with ¾ in. facing, and the gear shafts operate on annular ball bearings.

A Kellogg single-cylinder tire pump is mounted on the gearbox with hose connection coiled under the driver's seat. The pump is meshed by raising a button on the front floorboard. The tire pump and speedometer gears are housed within the gearbox, being thus protected and lubricated.

Hotchkiss drive is used, the propeller shaft being a .440 carbon steel unit equipped with two Schwitzer universals. The springs are Perfection, chrome vanadium, semi-elliptics, 36 x 2 in. front, and 54 x 2½ in. underslung rear. The spring shackle bolts are bushed with Nigrum oilless bearings, thus reducing the number of grease cups on the car, which total eleven. The spring shackle bolts are ⅞ in. diameter.

Side-by-side brakes are employed, both service and hand brakes being internal expanding. The drums are 14 in. diameter, and the service brake 2 in. wide. Adjustment of the brakes is accomplished by turning the wing nuts on the rods beneath the front floor board. Artillery type wheels having ten spokes in front and twelve in rear are used. These are provided with Parker demountable rims, one extra rim being provided as stock equipment. The tires are 32 x 4 in., straight side cord with rib tread front and non-skid rear.

The fittings throughout the car are in accordance with current practice, the fenders being full crowned. The muffler is a Maxim silencer with Petry cut-out valve. The steering gear is a semi-irreversible screw and nut type with the spark and throttle quadrant and horn button mounted above the steering wheel. The auxiliary air adjustment and the electrical switch equipped with thief-proof lock is mounted on the column just below the steering wheel.

Do You Hold Sales Meetings?

THE Buxton-Phillips Motor Corp., Kansas City, L. A. Buxton, retail sales manager, holds daily and weekly meetings of the sales forces for both Chalmers and Maxwell. Every morning at 8.30 all the salesmen gather, going over the work of each on the previous day and outlining the calls for the current day.

These morning meetings are strictly on current business, the salesmen getting the help of their fellow salesmen on the prospects which they are immediately concerned with. The company is eager to have the Chalmers salesmen know all the points on selling the Maxwell and vice versa; and there is a distinct advantage to the two forces in hearing each other's arguments for their own cars and hearing the manner in which objections are met.

The company has retail sales contests each month; any salesman missing any of these daily meetings without a good excuse is eliminated from the prize contest. The company also holds weekly sales meetings when the general problems of salesmanship are discussed.

A feature of the weekly meeting is the occasional examination of salesmen on various topics—on the policies of the company, on the parts of the car, on local affairs, and on general information. Prizes are given to the salesmen who come out of these examinations with the highest scores.

Buxton has a few very definite ideas on the qualities of the most successful salesman; and on salesmanship of automobiles. One of these is that perfect salesmanship gets results without appearing to imposing the commodity on the customer.

This involves not only such perfect familiarity with the car that even the most technical information can be given in a casual way, but also such accurate general information that casual conversation on other topics than automobiles need not impress the customer with the thought that the salesman knows nothing else except cars.

In all the meetings the idea is emphasized that the man whose mind is alert is the one who can take quickest advantage of every opportunity in the sale negotiations, and that alertness involves the fullest exercise of the mental faculties at all times.

The daily and weekly meetings are also aiming at the standardization of sales talks, even to such minor matters as to what Maxwell and Chalmers cars have done in Kansas City and vicinity. One definite point, for instance, is that each of the salesmen should mention the same mileage on gasoline, which might vary slightly for Kansas City as against some other community, and which is much more effective as an argument when it is specified as Kansas City mileage.

Mention has more than once been made in the meetings as to the advantage of reading business papers for keeping up with the news of the industry, and the reading of weekly review magazines as a means of keeping up with general information.

The half dozen general magazines which have a large circulation seem to stand equally well among business men; if a customer happens to refer to a point of view on the war given by the Independent the salesman's response with something he saw in the Literary Digest provides an immediate harmonious contrast. The effect on the customer is far better than if the salesman refers merely to a dispatch which he saw in the newspapers.

At each of the weekly meetings some article is usually presented, either being read or a digest being given, bearing on salesmanship or on general conditions which the salesman is likely to be called upon to discuss.

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The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer.

THE LAW

By George F. Kaiser

As It Applies to
Dealers
Repairmen
Garagemen

Alien Can Be Barred

THAT a town has a right to provide by ordinance that no license will be granted to a motor car used for the transportation of passengers for hire except to a citizen of the United States was decided in a late New Jersey case.

A Russian owner of a jitney bus was convicted of violating an ordinance providing that motor cars for hire should not be operated by persons who were not citizens.

He appealed, claiming that the town had no constitutional right to limit the operation of motor vehicles.

The court decided against him, however, although he had a state motor vehicle driver's license, and held that he had no right to drive a car for hire in view of the ordinance. It further held that the town had the right to deny the privilege of using the public streets and places to aliens just as it had the right to prevent them from engaging in practising law, the laundry business, the liquor business, or any other business it might see fit.—Morin vs. Nunan, 103 Atl. (New Jersey) 379.

Bars Price Contracts

THE Federal Trade Commission recently handed down a decision on price fixing along the lines of the opinion of the United States Supreme Court in the Gramophone case. The commission's order was issued in a case involving the manufacturer of certain proprietary medicines.

The manufacturer was forbidden to indicate to dealers the prices at which its merchandise should be re-sold, from obtaining agreements from dealers to keep to such prices, from refusing to sell to dealers who failed to keep up prices upon the same terms as dealers who kept up prices and from furnishing advantages of any kind to the dealers who agreed to keep up prices.

The following statement was made by the Federal Trade Commission in connection with the case:

"Some of the most distinguished lawyers in the United States have appeared before the commission to argue this question, as well as many of the leading business concerns of the country, some of whom have insisted that the maintenance of resale prices was proper, and others who have contended that it was not. Almost all of the large department stores of the country have been heard in opposition to it.

"After full consideration the Federal Trade Commission has decided to issue complaints against all business concerns who refuse to sell unless the purchasers will agree to maintain a resale price fixed by the seller. The case just decided is the first formal finding by the commission to that effect.

"When once an article has passed from the maker to a purchaser he owns it, and the owner of such article may sell it at any price that he chooses, provided he does not himself sell it at such price as to be below cost, and thus thereby enter into unfair competition with other retailers selling the same article.

"This decision is going to be open to considerable controversy in relation to the subject matter thereof, and the matter will probably have to be settled by an act of Congress in the manner suggested by Justice Brandeis in his concurring opinion in the Supreme Court of the United States, in the case of the American Graphophone Co.

"The Stephens bill, which is now in Congress, is in relation to that matter, but in the estimation of many business men and others it is thought to be broader than it should be. It may be that resale prices can be so regulated by placing the power somewhere protecting against unfair prices as to make it work equitably, and be a fair method of competition in commerce, but that question will undoubtedly have to be settled by Congressional action."

Sunday Contracts Illegal

THE fact that Sunday contracts are invalid is persistently ignored by some dealers. When these dealers finally understand that the courts will not afford them any relief in illegal transactions they will stop making illegal contracts.

In a case decided some time ago, an owner of an automobile made a contract with a dealer to exchange his car. The agreement was made that the old car should be taken in as part payment and that $1,000 in cash in addition should be paid on the new car. The contract was made and completed on a Sunday and the check was delivered to the dealer on that day.

The customer notified the dealer some time later that he was not satisfied with the new car and that he wanted to return it and get his old car back. The dealer replied that the old car had been sold, whereupon the customer turned around and stopped payment on his check and sold the new car.

The matter finally came to court and it was decided that the transactions were illegal because they were made on a Sunday and that neither party could have any relief from the court against the other.

Of course, the sale of gasoline and accessories is permitted on Sunday in many states because of express statutes which have been enacted, such as the one in New York State. Where there are no statutes, however, even these sales are usually illegal under some of the old "Blue laws."

Tipping Is Illegal

AN illegal practice persisted in by dealers is the tipping of chauffeurs, although a great number of states now have statutes making it improper to pay commissions or bonuses to chauffeurs.

Persisting in this practice in the face of these anti-tipping laws often leads to unlooked for results.

In one New York case it was held that the employer of a person receiving a bonus need not even pay the dealer or garageman what was justly due him if the latter had violated the New York act by paying a bonus. In addition to losing some considerable amount, which he may be justly entitled to, a garageman frequently leaves himself open to being convicted of a misdemeanor if he pays a bonus in a state where any anti-tipping law is in effect.

Good Demand in Canada

WINNIPEG, May 27—When figures on automobile production show that the output is considerably decreased from last season, it is rather startling to find that all over the country the demand, instead of decreasing in proportion has actually increased. A western distributer of the Reo reports that since January he has taken orders and received the money for more cars than he had sold in the same period of either last year or the year before, his two banner years. The results showed practically a 20 per cent increase in demand. When this figure is considered in relation to approximately a 30 per cent reduction in motor car output, the country would seem to be on the verge of an extreme car shortage.

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How to Lay Out a Building—7

THIS is the seventh of a series of articles which take up in detail the layout and arrangement of buildings for the dealer, garage and repairshop.

If you are thinking of building a garage, salesroom or service station, and are puzzled as to the proper lay-out of the building, send your plans to us. We shall be glad to help you. Include all necessary data and, if possible, a rough sketch.—EDITOR.

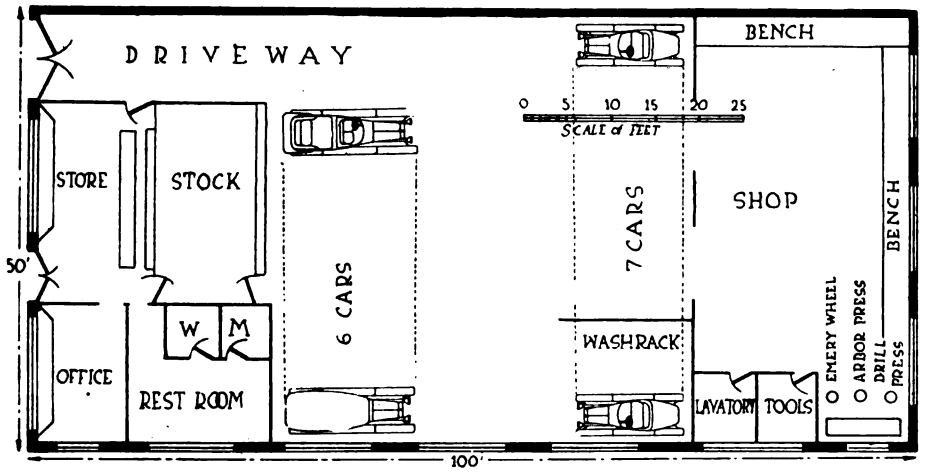


Fig. 25—In this plan the two large windows across the front are used for an accessory display

Plan No. 9

THIS plan, Fig. 25, answers the same purpose as that shown in Fig. 24. Two large windows across the front are provided for accessory display. An advantage of this plan is that the office is situated at the front, where light is good, although, of course, the advantage is paid for by reduced store width. The office is convenient to the accessory store, yet is distinct from it, so that it is possible to transact business in the office without distracting the attention of customers in the store.

Although the office is on the opposite side of the building from the driveway it is nevertheless very easy, by looking through the front window, to check cars as they come and go.

The plan has been arranged so that anyone desiring to go to the office, waiting room, or lavatories must pass through the accessory store. Naturally, the more traffic there is through the store the more business will be done in it.

Plan No. 10

IT is plain that the showroom, the shop and the garage units illustrated in the various plans cover the majority of designs that are required. That is to say, among the showroom plans almost any dealer should be able to find a showroom to suit him, and the same holds true regarding shops. Therefore when a plot of irregular shape is encountered, one which does not lend itself readily to the adaptation of one of the standard plans, a suitable standard showroom and shop unit should be chosen and so located on the plot that the cars in the garage may be efficiently placed. Fig. 26 is an example. Here is a plot 75 x 80 ft., to which it is hard to fit any of the plans given. We will assume that the showroom and shop unit, Fig. 10, is satisfactory. Since the lot is on a corner, the showroom unit is placed on the corner. The space between the showroom and the rear of the building is about the right length for the shop unit, the light is good along this wall and the sliding doors across the rear make it easy to run cars in and out. It seem like an ideal place for the shop; therefore the shop unit is placed there.

A moment's inspection shows that the only car arrangement possible in the garage is the one chosen. Part of the garage aisle has cars on only one side. This is not an efficient use of the space.

From the standpoint of garage layout the plan, Fig. 27, would be much better. The light and access to the shop are not quite so good (unless skylights are used), but twenty-two cars may be stored in the garage instead of seventeen.

Plan for Lot 34 x 300

Editor Motor World: We have a lot with a 34-ft. front and 300 ft. deep. The lot is situated on Main Street, has a back entrance from a side street, has a gradual slope to the rear. We would like to have an accessory shop and a showroom for cars in the front, but we do not want to crowd our showroom. We will build one or two stories whichever we can arrange more conveniently.

We are dealers for Buick and Franklin cars and for Republic and Little Giant

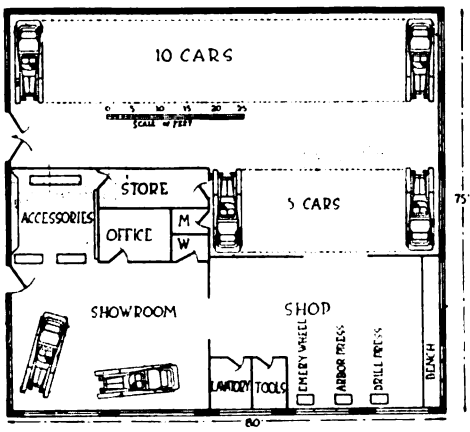


Fig. 26—A rather hard sized plot to which to fit a standardized plan

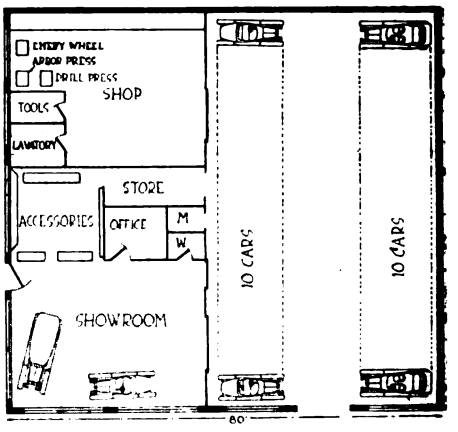


Fig. 27—This is a better arrangement than the one shown in Fig. 26

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trucks. We will need storage room for an average of 10 cars.—Crum Brothers, Orangeburg, S. C.

Herewith is a plan drawn to meet your specifications. Before going ahead with this building we should like to advise you that you will not be satisfied with a building on such a narrow plot. Forty feet is the minimum width, and even that is rather narrow; 45 ft. is much better and where large cars are to be stored 50 ft. is standard.

The difficulties with a narrow plot are in the layout of garage and shop. You have not stated whether the garage section is for public use or merely to store your own cars. In the latter case a systematic arrangement of machines is not so necessary.

In other words with a width of 34 ft. if you try to obtain an orderly arrangement the best you can do is place a row along one wall and even then it will be necessary to stagger the machines so as allow sufficient aisle space.

Obviously very few machines can be stored with this arrangement and a more efficient way to use the space is to pack them in lengthwise, leaving no aisle. It is hardly possible to do this, however, unless the machines are not moved frequently, which would be the case if they were ones you were holding to sell and were not on active storage. Thus it should be plain that a 34-ft. plot is out of the question for garage purposes.

Likewise the only possible arrangement in the shop is to place the bench along one wall. Difficulty will be experienced in getting the cars in and out.

A front entrance to garage and shop is almost out of the question since it would leave a very narrow showroom and a window space only large enough for one car.

The customary location for the shop, which is at the rear, where light is best, cannot be used, because if this were done the only means for reaching the garage, which would then be between shop and showroom, would be by a front entrance, and as already pointed out this is almost out of the question because it would make the showroom too narrow.

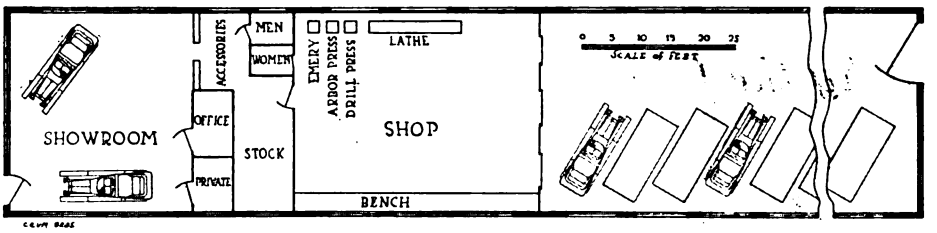
If you follow the plan submitted the shop will have to be lighted by skylights, but there is no great objection to this.

To sum up, we strongly advise you to select a plot 45 ft. or more wide.

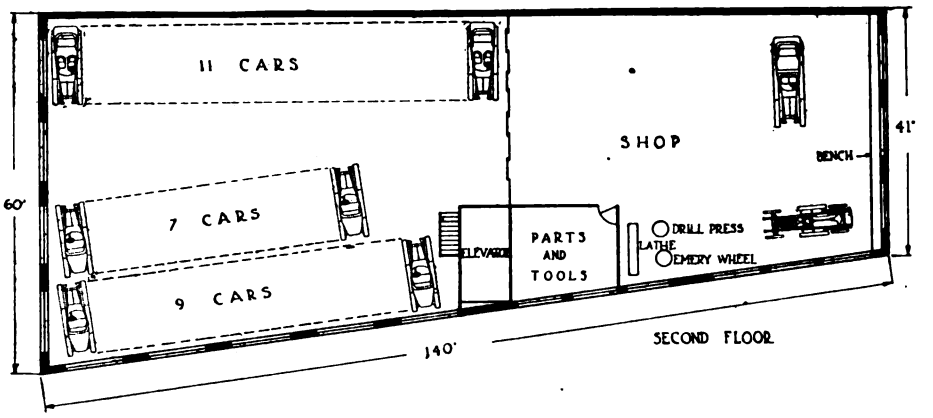
Has Lot 41 x 40 x 60

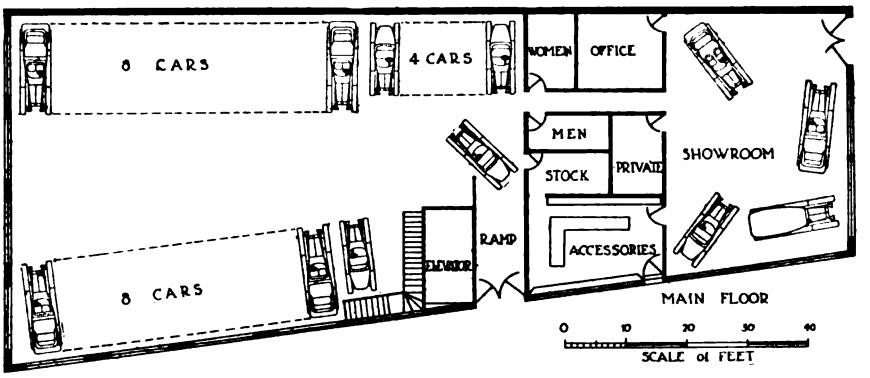
Editor Motor World: We have a lot 41 x 40 x 60 on which we are contemplating building a modern and up-to-date paint and trimming shop, with some space for storage purposes. The lot is situated on two streets as per diagram and the 60 ft. end of the lot is 16 ft. lower than the 40 ft. end.

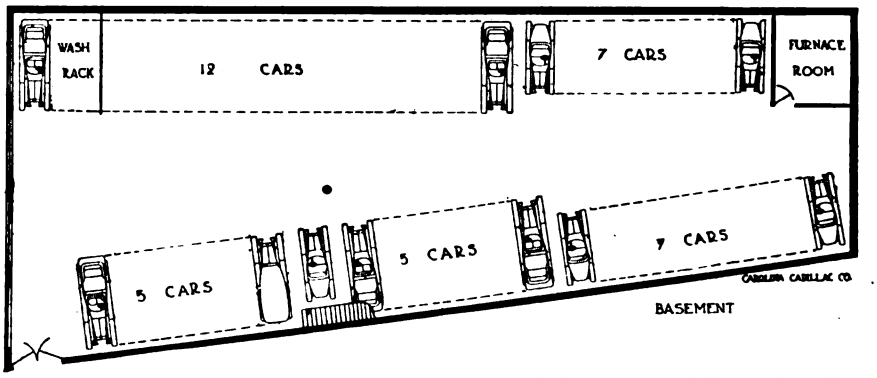
The building contemplated is to be three stories high. Your suggestions in the past have always been helpful and it is with this in mind that we are asking your assistance in building and locating our equipment. —C. E. Enfield, Carolina Cadillac Co., Winston-Salem, N. C.

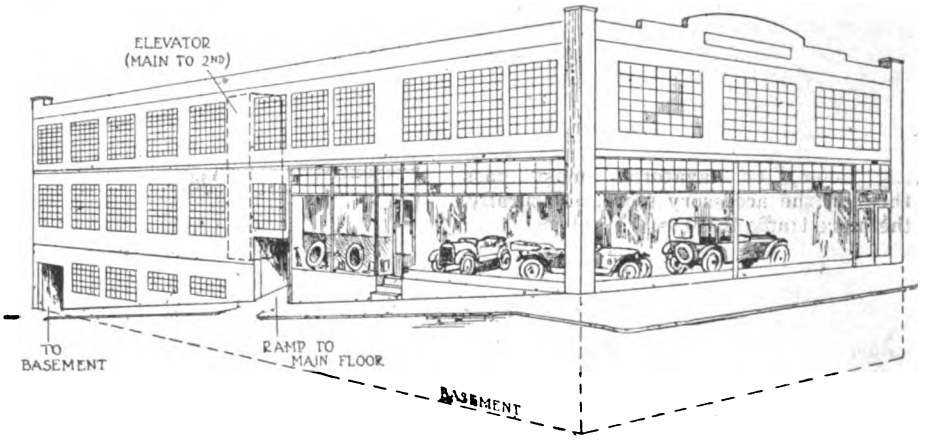


Plan for Crum Brothers









Plans for the Carolina Cadillac Co.

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Why the Old Implement Man

Can Never "Sell" Tractors

OWOSSO, MICH., May 27—If additional evidence were needed to establish the fact of the superiority of the automobile dealer over the old style retail implement dealer in the final distribution of tractors, it might be found wherever the two types of dealers are essaying the tractor business, side by side.

A typical instance exists here. On nearby locations are The Auto Sales Co., distributer of the Buick and Dodge, and —let's call him Smith—old-time retail implement dealer and distributer of the Oakland.

Both handle tractors. Both began seriously in the tractor business something like two months ago. Both bought an opening stock of six tractors. The Auto Sales Co. machine is a 10-20, while the Smith machine is an 8-16. The one will pull three bottoms habitually, the other will take three bottoms only where the conditions are exceptionally favorable.

When it is said that Dealer Smith carries tractors the term is used advisedly. He does carry them. Of his original six he still has five on hand. Of the six with which The Auto Sales Co. began business there remains but one unsold.

Two Types

The different degrees of success attained by The Auto Sales Co. and Dealer Smith are due primarily to a fundamental difference in sales policy, a policy in each case which is in harmony with the traditions of the business each was engaged in previously, and which emphasizes the one over the other.

Smith, convinced by the inclination of retail implement dealer organizations to discourage canvassing, has waited for tractor trade to come to him. He has been resting in the—to him—comforting assurance that everybody knew he was in the implement business; therefore, naturally, if anyone wanted a tractor he would come to him for it.

The Auto Sales Co., on the contrary, was in a trade which had no such limiting traditions, so a more aggressive policy was adopted. Immediately upon securing a tractor agency a man was started out into the country to canvass actively for prospects. The advantages of power farming methods were explained from an economic point of view; the equipment and the ability of The Auto Sales Co. to give adequate service were emphasized; the particular mechanical features of the tractor the company sells were illustrated, described and explained.

> He may be able to act as an agent, but the great essential is the go-out-and-sell-'em methods of the motor car dealer.

The result was inevitable; hence the fact that The Auto Sales Co. has sold five out of its six tractors and has left a number of live prospects, while Smith has sold but one of his machines. That he cannot enthuse over the future of the tractor demand is not to be wondered at. It merely is typical and significant.

Eleven Fordson tractors also have been delivered in the immediate neighborhood of Owosso through the recent state campaign. The effect upon The Auto Sales Co. and upon Dealer Smith is characteristic also. The former says: "The more the merrier. There's room for all of us. Every Fordson tractor which does good work is a boost for power farming and will excite a desire for a tractor in the minds of farmers who never yet have seriously considered one as a possibility. The more tractors there may be in this neighborhood in successful service the more we shall sell ultimately."

In contrast Dealer Smith takes the view that 11 Fordson tractors about cover the immediate trade possibilities and that he will wait and see what the result will be before he makes any very active efforts to get additional trade.

10-20 Best Seller

Again The Auto Sales Co. more nearly divined the size and type of tractor which meets the preferences of the farmers in that vicinity. This may have been chance or it may have been good judgment, but the 10-20 seems to sell more readily than does the 8-16. A higher light, too, is thrown upon this contrast when it is understood that both tractors are made by the same concern, the ——— Co., the one being the ——— and the other the ———.

G. A. Stanton, of The Auto Sales Co., has charge of the tractor department. "In addition to keeping a man constantly in the country," he says, "whose duty it is to run down every tractor tip we get or hear of, it is our purpose to give service to the extent of seeing that every tractor we sell works continuously and satisfactorily.

"Serious difficulty, should such be met, we shall look to the factory to take care of, of course, and service rendered after that necessary to get the tractor into satisfactory running order will be charged for. Service costs money, and it would be easy to eat up our profits in this way very soon. This we do not intend to allow. But we will give service up to the point where our customer is satisfied. Beyond that he must pay for it.

"We are thoroughly equipped to render service, and our experience to date in the tractor business confirms our prior conviction that our training in the automobile business would prove to be an efficient preparation for meeting the demands of the tractor business. We think we have demonstrated this fact, and we are looking ahead to realizing handsomely in the tractor business.

Pushing Ahead

"For the present we shall not carry any tractor implements, although we have sold some from catalogs. What the developments of the future may be in this direction we cannot see now, but it is certain that we are disposed to do everything necessary to make our tractor trade worth while, and if we find that this involves the stocking of power farm equipment, *we shall not hesitate to do so.*"

There is still another retail implement firm in Owosso—the Stowe Implement Co. This concern has been in business for 35 years, during nearly all of that time having represented the Oliver line of goods. Therefore, when the 11 Fordson tractors were delivered recently to the Stowe Implement Co., without any effort on its part, came the distribution of the 11 Oliver No. 7 plows which went with them. Yet the Stowe Implement Co. never has taken any interest in the automobile business, despite the fact that the automobile has cut an annual trade on buggies from about 100 to a paltry half dozen a year, nor has the concern seriously considered the tractor.

"The tractor is not far enough along yet to warrant us in taking it up," says Stowe; "we'll wait a little while and see."

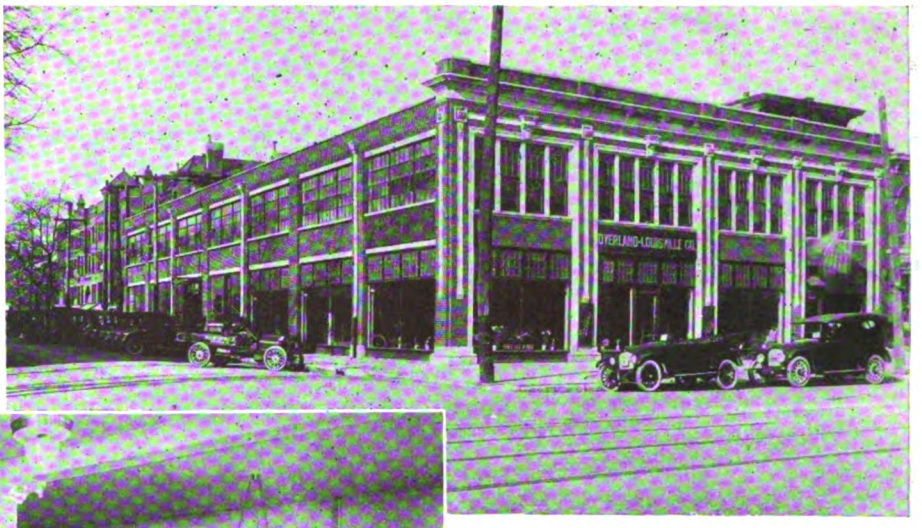
In the meantime The Auto Sales Co. is not waiting but is making tractor profits and at the same time establishing itself as the tractor authority in its section.

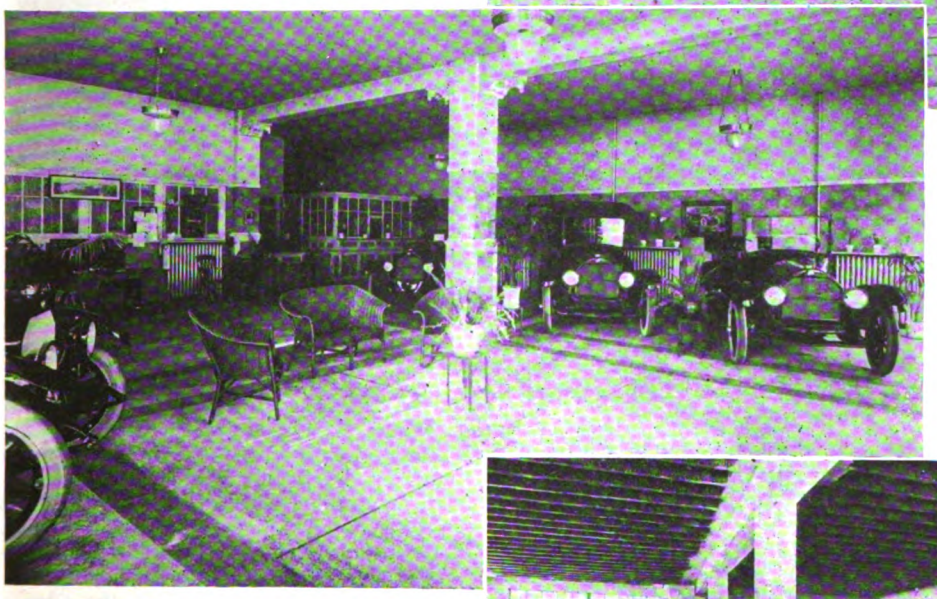
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DRESS-UP

Makes the Sales Come Faster

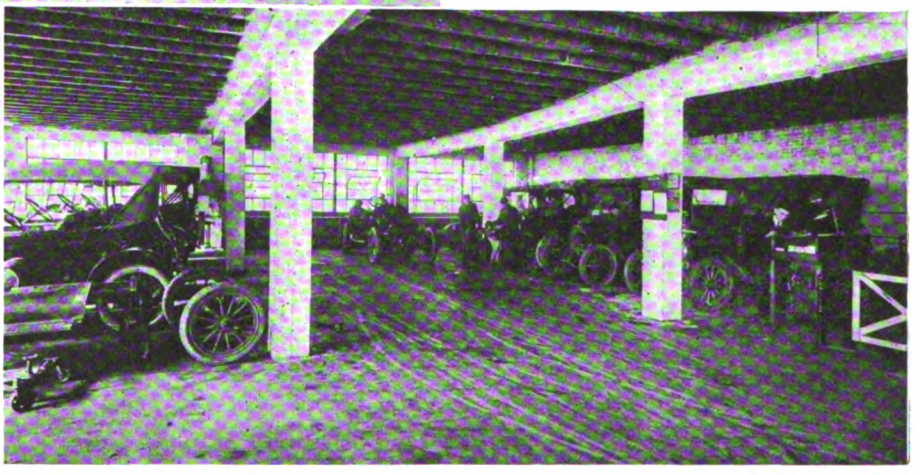
Overland-Louisville Co., Louisville, Ky., Believes in Atmosphere and Neatness





Top—The front of the Overland-Louisville Co.'s building carries an air of stability and business aggression. It looks substantial

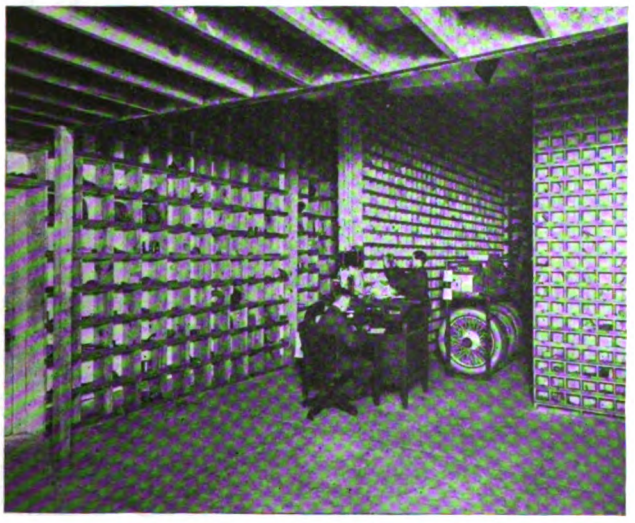
Left—The salesroom has a spacious floor which is not crowded with cars, although there are plenty of cars that might be crowded in. Flowers are used to carry the atmosphere



Right—This shop picture was taken without flashlights, because the building is so well lighted. Cleanliness is considered a factor in efficiency

Lower Left—There are 2600 wood bins for stock. Tires are stored on the overhead balcony. Carl Hurst, stockman, is at the desk

Lower Right—The garage is one of the cleanest parts of the building. A big hydraulic elevator is one of the garage assets





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A Department of

BETTER MECHANICS

No. 69

Simple Methods of Repairing Cracked Waterjackets

A Temporary Job and a Permanent One

WHEN a waterjacket cracks, the standard method is to have it welded. This makes an absolutely permanent repair, but it has several serious objections:

1—It is relatively expensive.

2—There is the cost of removing and replacing the cylinders.

3—It requires time, not so much for the welding itself as for the removal and replacement of the cylinders.

4—There is always a possibility of warping the cylinders so that they will have to be rebored.

Inasmuch as many owners object to the expense and also to the time the car is laid up it is often desirable to use a simpler method which is just about as satisfactory.

In most cases a good radiator compound will do the work, care being taken to select one which will not clog the radiator nor otherwise injure it.

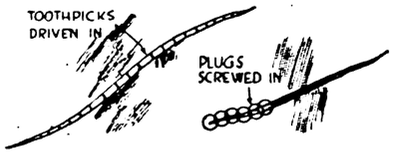
This method has the advantage that the repair can be effected in a very short space of time and if properly done it should be permanent.

Using Healing Compound

If the crack is a small one, say less than 1/32 in. width, the liquid will close it up quite readily. It is desirable to have the cooling water warm before the liquid is poured in.

In order to prevent undue leakage in warming the engine up it is best to run the engine without water until it is warm, then fill the cooling system with boiling water and then pour in the liquid.

Soon the thin sheet of water issuing from the crack will break up into a number of small streams and these will grow smaller and disappear one by one until the fissure is sealed. The engine should, of course, be kept running in order to keep the water warm.



Wooden toothpicks forced into a small crack will stop the leak temporarily. A permanent job can be done by screwing in a series of brass plugs

When the car is taken out on the road it may be found that the vibration of the engine will open the crack slightly, but little leakage will take place and before long it will be tight permanently.

If the crack is wider than 1/32 in. the leakage from it may be so great that it will be found advisable to pack it with lead wool.

Tamp in Lead Foil

This material is nothing more than strips of thin lead foil about ⅛ in. wide and should be obtainable in any large hardware store. The material is tamped into the crack much after the manner of a dentist filling a cavity with gold. Its function is simply to impede the flow of water so that leakage will be cut down. The wool and the compound amalgamate so that the result is a tight joint the same as in the case of the smaller crack.

To prevent leakage at any future time it is desirable to keep some of the compound in the system. If the radiator is drained a small amount of new compound, depending on the maker's instructions, should be added when the fresh water is put in.

Another good method, which, however, cannot always be applied without removing the cylinders, is to start at one end of the crack and drill a ⅛-in. hole, tap it, insert a brass screw and cut it off close to the surface. Then a hole is drilled on the edge of the brass screw, tapped and another screw inserted. Then a third is put in place on the edge of this, and so on until the crack is filled.

The screws, of course, should be tight fitting and should be coated with white lead before inserting.

A makeshift repair which is cheap and quick, although not applicable to very narrow cracks consists in forcing toothpicks into the opening and breaking them off close.

If the crack is very small and allows only a little seepage it may be closed by adding some sal-ammoniac to the water. This chemical rusts the crack and the rest of the cylinder casting as well.

It is important, as soon as the leak stops, to flush out the system and put in clean water.

Palmer Heads Collier Truck

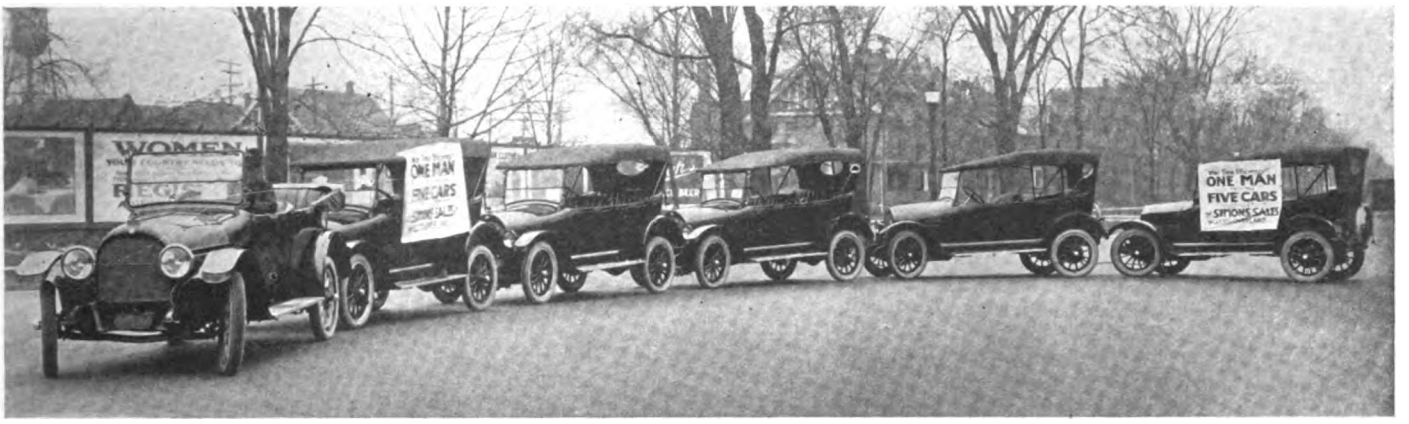
BELLEVUE, OHIO, May 27—H. A. Palmer, organizer and director of business policies of the Cartercar Co. from 1895 to 1912, has been elected president of the Collier Motor Truck Co. Associated with Palmer is John F. Cool, formerly general manager of the Rapid Motor Vehicle Co., Pontiac, and Edwin S. Lewis, who is directing the sales of securities. The Collier company was formerly located at Sandusky, Ohio, but recently moved to Bellevue, where it will continue the manufacture of ¾-ton trucks. The plant is to be enlarged shortly.

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Trailing Bar Facilitates Drive-aways

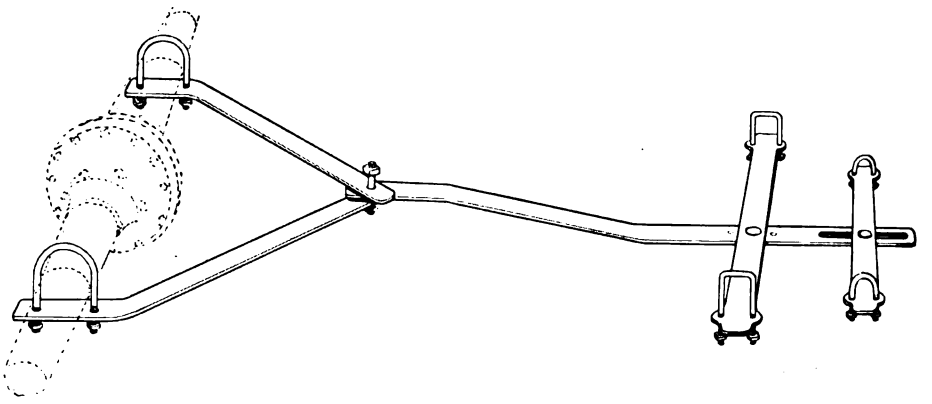
THE Simons Sales Co., Overland distributer, has tried out a new trailing device furnished by the Willys-Overland Co., which has proved very successful. By means of this trailing bar it is possible to drive six cars, and perhaps more, with one driver. This makes for economy. The trial drive was made from the factory a short time ago and when the cars arrived in Detroit they were taken over the boulevards and through the more congested traffic sections of the city with no difficulty. This was made possible because all the cars tracked perfectly.

It is possible with the assistance of this device to turn a train of six cars around an ordinary city corner with as much ease as the first car alone. An advantage lies in the use of the trailing bar in that the train of cars can be pushed equally as well. If the first car is unable to pull the train out of a hole, the driver can do so from the last one.



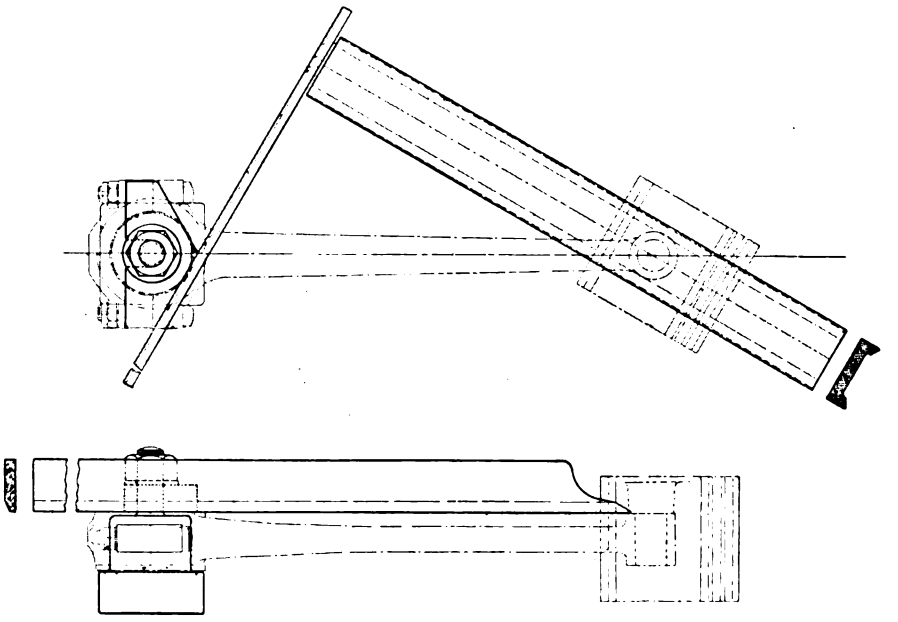
Above—One driver trailing five Overland cars by means of a steel draw bar. This train drove over the boulevards of Detroit and through the congested parts of the city without difficulty. Provided a heavy car is used for pulling it is possible to attach more than six cars in this fashion and successfully draw them

Right—The trailing bar. The loops at the left side are attached to the rear axle of the first car. The middle cross bar is fastened with a pivot and the ends are securely screwed to the front axle of the second car. The cross bar at the extreme right hooks securely to the tie-rod; the slot in the draw bar permits it to slide back and forth as necessitated when turning. By means of this bar the cars track perfectly



Piston and Connecting Rod Aligning

PROPER alignment of the piston and connecting rod is essential to correct operation and this may be effected by means of a special device. There are three distinct disalignments possible. The first an offset in the direction of the crankshaft; the second a bend to the right or left in the direction of the crankshaft; and the third, a twist in the connecting rod. A special device used in the test comprises a block attached to the crankshaft bearing and two gages used in checking the alignment. One is attached to the piston by means of rubber bands and the other used to gage the resulting alignment.—Packard Motor Car Co., Detroit.



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Repairshop Shortcuts

From Motor World Mechanics

No. 1682—HOOK FOR PISTON RINGS

A hook to hang piston rings on is made of ⅜ in. round steel, about 12 in. long, and with the end bent around to form a hook so that the rings will not slide off.—R. A. M. Machine Shop, Brooklyn.

No. 1683—BATTERY TRUCK

A truck for hauling starting and lighting batteries from cars at the curb to the shop is made of a board 14 in. wide, 24 in. long and 2 in. thick. A batten is screwed across each end of the board on the bottom and large castors are fastened to each corner. A piece of ⅜ in. cotton rope serves to pull the truck.—White Co., New York.

No. 1684—STORAGE BATTERY CLAMP

A tie rod to prevent the clamps that hold the storage battery on the car from splitting the outer case of the batteries. Made of two ⅜ in. steel rods with right and left threads and a piece of hexagon stock drilled and tapped to form a turnbuckle. Can be applied and taken off quickly.—T. D. Schaftchenko, National Carbon Co., Cleveland.

No. 1685—AIR COMPRESSOR

An air compressor is made by welding an old brake drum to the driving pulley of a motorcycle engine, this serving as a belt pulley to drive it from a ¼ hp. electric motor. The exhaust valve is rendered inoperative by cutting a piece off the stem so that it is not raised when the cam raises the valve lifter. A stock check valve is placed in the air pipe line which leads from the spark plug hole to the tank. Engine, motor and tank may be placed on one board.—R. A. M. Machine Shop, Brooklyn.

No. 1686—WHEEL ALIGNMENT GAGE

A wheel alignment gage is made by bending a piece of iron pipe up at the ends at right angles. Flat pieces of metal are attached to the pipe to keep it in an upright position. Pieces of steel rod are held in the ends of the pipe by set screws so that they can be raised or lowered according to the size of wheel. Screws are threaded through the upper ends of these rods, the points to touch the inside of the rim or tire.—C. C. Leong, Hakalau, Hawaii.

No. 1687—BENCH SUPPORT FOR CASINGS

A support to hold a casing in position while cleaning and rebuilding it preparatory to vulcanizing is made by fastening a light chain to the ceiling, the lower end extending to within 18 in. of the bench. A hook in the end enables the chain to be hooked around the casing and can be adjusted so that the casing is upright or lies over at an angle. Two wooden pieces with rounded corners extend from under the bench below the chain to hold the lower part.—A. Jungkind, Brooklyn.

No. 1688—WAGON WHEEL FOR TUBE RACK

A rack for holding tubes to be repaired is made from a wagon wheel by removing the rim and tire, leaving the spokes for tube racks. The wheel is held to a wooden upright by a lag screw and washer. The wheel can be turned, so that the workman does not have to do any walking to get tubes.—A. F. Rollin, Germania Rubber Wks., Brooklyn.

No. 1689—SUPPORT FOR RADIATORS

A soda fountain stool makes a good support for radiators while soldering or repairing them. The stool is placed near the bench, and the radiator is thus brought to about the height of the bench and within easy reach of tools, blowpipe, etc.—Western Radiator, Lamp & Fender Wks., Brooklyn.

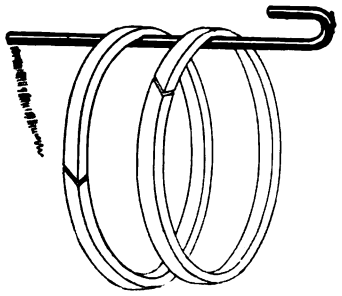
No. 1690—METAL CAN TO REPLACE FUNNEL

A metal polish or other screw top can is soldered to a piece of copper tubing, the lower end of which goes into the crankcase of an air compressor. This does away with using a funnel when oiling the base. The screw top keeps out the dust and prevents oil being forced out by the compression in the base.—R. A. M. Machine Shop, Brooklyn.

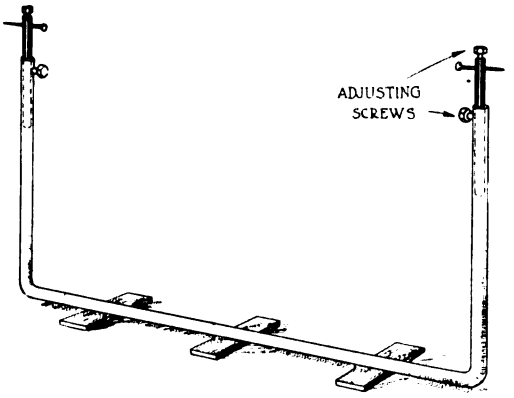
$1 a Helpful Kink

HOW often have you been compelled to rack your brain to overcome some difficulty? But when you did find a solution—what a satisfaction it was! Well, here's a chance for you to dig some of those life-savers out of their hiding places and put them to work for your fellow-craftsmen. Send them to Motor World. We will pay you a dollar for every one accepted for publication. The only requirements are these: 1—*Describe the short-cut briefly but clearly, in few words.* 2—*Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job.* 3—*Write on ONE side of the paper only.* 4—*Sign your name and initials, the name of the company you are with, and the town. Write plainly. If your name is unusual, print it in capital letters.*

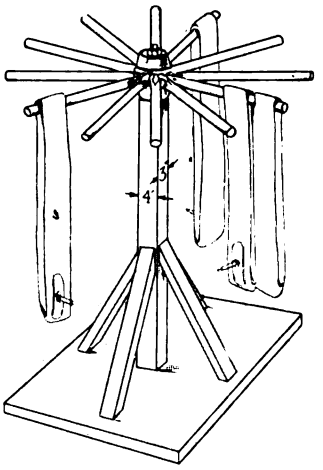
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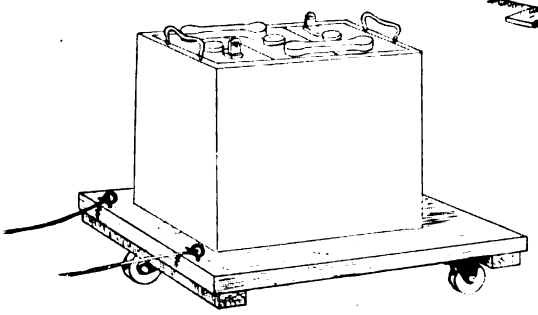
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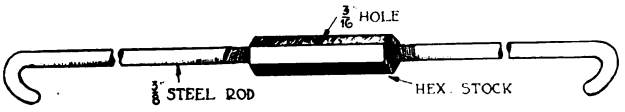
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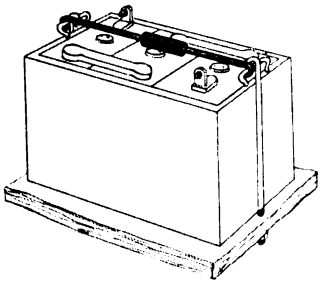


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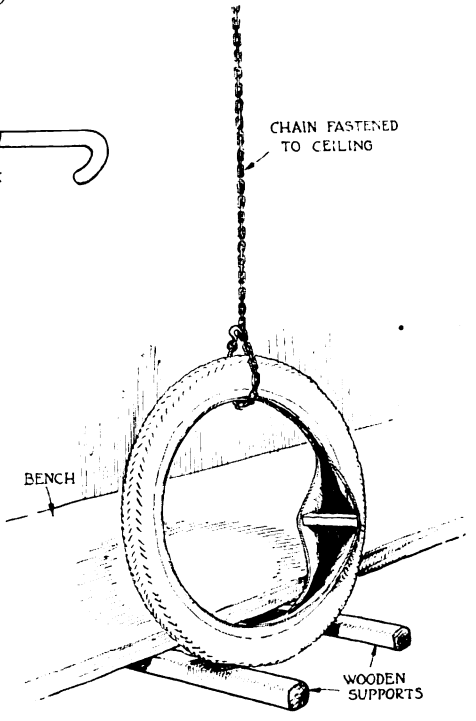


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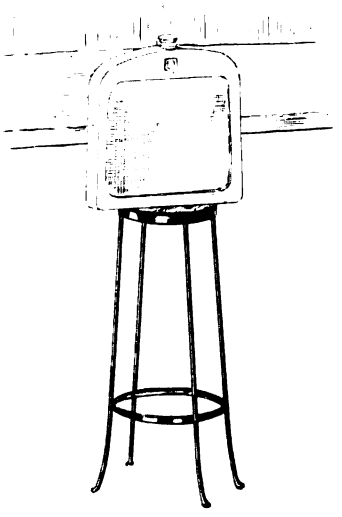




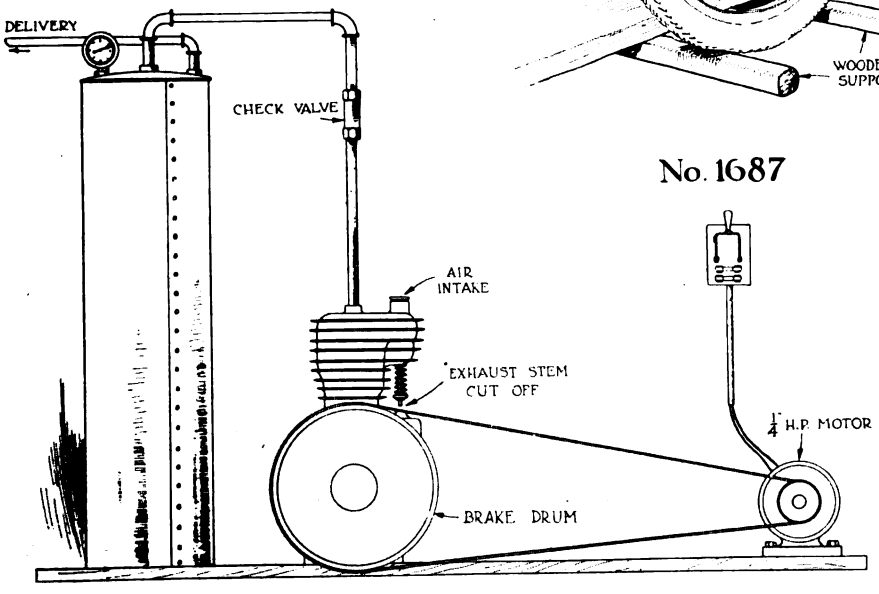
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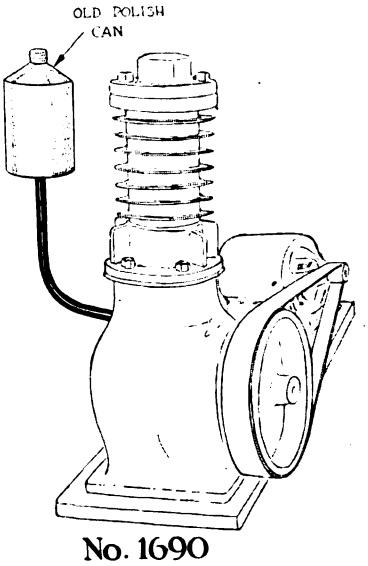
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Editorial Observation

Two Thoughts on Labor

Thought No. 1

LABOR is scarce these days and service station and repairshop operators are finding it more and more difficult to get enough skilled men to run the shops at maximum capacity.

Of course, in securing men there is the question of "diluting labor," as has been done in England and elsewhere, but that is another story. The fact is that many dealers are making it hard for themselves and the trade in general by stealing men.

For instance: A man shows up at the shop of Dealer A and says he wants a job. He says he has been working in a factory or out of town or some other place, and the dealer hires the mechanic.

Not until later do both Dealer A and Dealer B discover that what has happened is that Dealer A has hired one of B's men. Dealer B is short a man, so what does he do? He sends an emissary around and hires a man out of A's shop.

What is the result? Very simple. Both A and B have just as many men as they had before, the men are just as good—and no better—but each is paying several cents an hour more for the same work. Each has shot his overhead up from one to five or six dollars a week and nothing has been gained.

One evening the association in an eastern city had a meeting and the members, who were airing their wartime troubles, began to make assertions about this stealing of men. In a few minutes a lot of dark colored cards were on the table. Some admitted having knowingly stolen men. Others said it had been done by service managers without the knowledge of the dealer.

By the time these dealers got through comparing facts and figures they found that each man had just about as many men as he had before, was doing about the same work as before, but that each was carrying a dangerously increased overhead. All were agreed that fair wages must be paid to the men—because the cost of living is high and skilled men should be adequately compensated.

This stealing of men is an exceedingly short-sighted practice. In England the hiring of workmen is regulated by the government. In local circles in the motor trade the only governing necessary should be *common sense and co-operation.*

Thought No. 2

IN recent issues of Motor World have appeared letters from mechanics, or men who have been speaking from the mechanic's side of the question, setting up as a state of unfairness to the men the fact that dealers charge much more per hour for labor than they pay to the mechanics.

One such letter states that before the war mechanics were paid 40 cents and customers were charged 60 cents. It is also stated that now the dealers are charging $1 an hour and are paying mechanics 50 cents.

This is an increase of 25 per cent in the wage of the mechanic and 66 2/3 per cent in the price to the customer. This, one letter states, is not a fair proportion. It almost sounds like an accusation of profiteering on the part of the dealer.

But let us look the situation over. Let us concede that 50 cents isn't a high wage for a good mechanic. It is, however, a big wage for many who endeavor to pass as mechanics. This is not to be considered a reflection on mechanics as a class. This trade has some mighty fine ones, and because the trade has that reputation some mighty poor ones try to get in and enjoy the benefit that comes from association with a good industry.

But as to the discrepancy in the figures: It hardly seems that any other than a man experienced in business figuring could be competent to say what profit is derived from any difference between labor wage and charge.

During past years the trade has been notorious for the fact that its service stations and repairshops did not make money. How to make the repairshop pay has been one of the problems. One of the methods of arriving at a charge for labor has been to add a certain amount to the wage paid the mechanic and let that constitute the labor charge to the customer—which is obviously wrong. Known costs are needed.

In figuring repairshop costs there comes first the wage of the mechanic, and if he works 1 hour for the shop and 8 hours for customers this extra hour for the shop must be charged to the customers in some form. All costs have gone up. The employer must not operate at a loss. If he can only stay in business and pay his workers he is doing well. What is required is a little more *common sense and co-operation.*

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Letters from Readers

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

From Australia

Editor Motor World: I am enclosing herewith some photos of our business. You will notice notes on the back of them, which may interest some of your readers.

We are also enclosing two views of our garage, one exterior and one interior.

The town of Mudgee, which is our place of business, has a population of approximately 5000, and is supported by farming, sheep raising, grazing and mining.

We are agent for Buick cars and G. M. C. lorries. We also handle various makes of tires and carry out high-class repairs, including oxy-acetylene welding, casting, machining, etc.

You will notice we also enclose a photograph of portion of our workshop.

Last year we sold in the vicinity of 27 Buicks, but as the price of cars in Australia is very high, it makes a limited amount of sales, as only the well-to-do people can afford to purchase.

The price of the Buick, 6-cyl. car in Mudgee would cost the purchaser $2,625. Petrol retails here at $10 a gallon, and I am enclosing a retail copy of the Goodyear Rubber Co.'s price list for this country, so you will see, comparing it with your prices for everything connected with our business, we are at a big disadvantage, but the writer is looking forward to a time when we will be able to manufacture our own rubber goods and petrol in sufficient quantities to be able to reduce the running cost here to something like the ruling prices in your country.

You will notice outside our garage the Red Sentry Bowser pump, and we find this a splendid service to motorists, but again the cost is very high. The installing of this system fitted up ready for use cost us $1,000 with the 650 gal. reservoir.—Jack Austin, Austin's "Buick" Garage, Mudgee, New South Wales.

Is He Right?

Editor Motor World: I have read the article by Mr. Richards of Toledo regarding the scarcity of mechanics. To my mind he is absolutely right. Repair work is hard, dirty and greasy and one must have brains as well as brawn to be an A-1 mechanic—and, where for all this a garage owner will offer $20 to $25 a week, the scarcity of good mechanics is plain. Furthermore the garageman expects and gets from 90 cents to one dollar an hour for the work done in his shop, pays from 20 cents to 40 cents an hour for his help and then kicks because he can't get help.

He could get and keep all the help he wanted if he paid the right wages, made helpers do helpers' work, let mechanics do mechanical work and charged accordingly. But no, *he charges the same for work done by helpers as for work done by an A-1 mechanic* and many a car owner can testify to the truth of this statement.

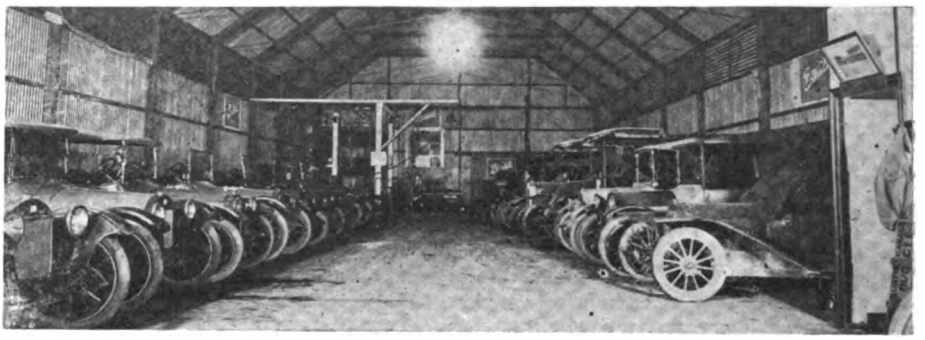
After nine years' experience in the repair end of the automobile business, I claim that a man should serve a regular apprenticeship the same as printers, etc. But no! bluff, a kit of tools and a cheap garage owner and he's a mechanic.

The trouble with too many garages is that a bookkeeper is trying to run the repairshop. The pay is too small for the work to be done on expensive cars and there is no incentive for a good mechanic. One must "know" hard, dirty work. Maybe some other "grease monkey," as I call mechanics, will correct me.—A. L. Bennett, foreman, Bryan & Gillette, Charlotte, Mich.

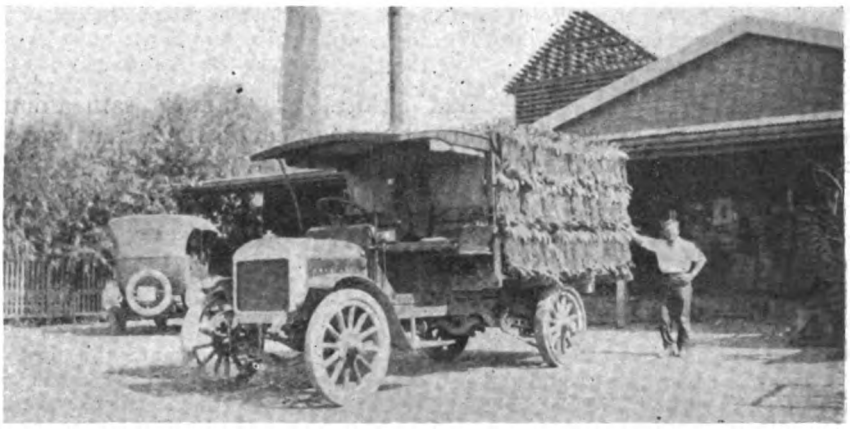
Se'ls Sedans to Farmers

Editor Motor World: Some months or so ago I noticed in the Motor World that you want pictures of farmers who have bought sedans. You stated that some one had remarked that a sedan could not be sold to a farmer, and if any one

They show Austin's Buick Garage in Mudgee, New South Wales, Australia. Look it up and see how far away it is. When it's noon here it's 3 o'clock to-morrow morning in Mudgee. The views show the inside, outside and a G. M. C. "lorry"—which is what the British call a truck—loaded with 1205 pairs of rabbits, in front of the refrigerating plant, whence they will go overseas and maybe you'll purchase some of them at your own home-town butcher shop







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had sold one you would like to have his picture, also how it was done.

I will state to you that I have sold seven sedans last winter, and six of these were to farmers. The only way to sell a sedan to a farmer is to have Ford sedans. They sell themselves.

I have told you that I had sold six sedans to farmers but I will change this and tell you that the farmers came in and bought six. The way to sell a sedan to a farmer is to have a sedan in your showroom, and let the farmer come in and see it.

I am enclosing you a picture of this farmer, in his sedan. He is Mr. R. P. Sentell. He is a prosperous cotton planter of this county. He raises everything that is required to make his farm self-sustaining, and then makes all the cotton that he can to sell at a high price. Would be pleased to see this published in Motor World. Yours truly, J. M. Whitehead, Vienna, Ga.

Here is the picture that J. M. Whitehead sent us. It shows a contented farmer in a sedan—a sedan that Whitehead sold to him. Motor World would like more pictures like this. Send them along.



What Money Cannot Buy

Editor Motor World: Your letter in regard to our resolution to close up all the shops in town and harvest wheat came yesterday. In behalf of our association and myself, we appreciate your interest in the matter. I am enclosing you a copy of the resolution.

Several weeks ago while in Kansas I was amazed at the prospective wheat crop. At our next local garage dealers' meeting we adopted the idea, and every member loyally supported the motion. At a regular meeting of the shop men a paper was signed: "To lend our services in the saving of wheat as the harvest demands."

This paper was signed by every garage employee in our little city, which totaled about fifty men. Forty per cent of these men are capable of running thrashing rigs, thereby filling a place that common labor could not fill.

Our plan is to leave our business houses open and our shops closed with the exception of two men left in "one" garage to take care of cars belonging to physicians and United States mail routes. We are leaving our supplies, gasoline and oil open for sale, together with storage by men and women who are not able bodied to do harvest work.

Our local papers are advertising our shops to be closed at that time, and the general automobile trade is loyally supporting the movement. We in turn shall harvest our own crop, "not wheat," in the fall if it becomes necessary, but the wheat, even though the fields are several hundred miles from us, must be harvested at the proper time to save the crop. We are at war, wheat will win the fight, and we cannot take chances on losing a bushel.

I might state that other dealers' associations are interested, and I am certain that a great many of them will adopt the idea. If our own Rocky Mountain Auto Trades Association, consisting of 600 garage dealers, should adopt this proposition, even in a modified form, the industry in this section alone could release 5000 men.

No other business could release men so efficient in this work. No other business could close up their shops and have the work when they returned as we can have. The average shop is not a "money maker but a grief taker," and wherever garages can consolidate as an association the business will not be ruined or the labor be lost by six weeks of our time in the harvest fields.

In our section we feel that the dealers will have no loss and feel that the shop employees will be well satisfied for a month's change of work as well as the wages they receive. At least we will have done our part—*a part that money cannot buy*—a service that our country needs, and the first duty that we owe to the boys "over there."—Most sincerely yours, Clayton Garage Dealers' Assn., J. Allen Wikoff, President.

Try This Idea

Editor Motor World: I see in Motor World from time to time helps to the larger dealer, and we have worked out an idea which has helped us greatly the past year.

In former years we have sent out salesmen and worked territory at a great expense. This year we picked out a number of small garages and repair-shops in the adjacent counties, and where we found that the owner was reliable, would sign an agreement with him to represent the cars we handled in his locality, never giving more territory than he could keep closely in touch with.

Our plan was to furnish the car for him to keep on his floor and sell. We finance the transaction and he sells the car and looks after the customer. We would give him 8 per cent for his work.

Formerly we had to pay a salesman 5 per cent on all sales and furnish the car and pay his expenses. When he sold a car in a district fifty miles from home, it was up to us to take care of the owner. We did not have the good-will of the local man and there were times that the extra expense would eat up our profits, but now our local men sell the cars and make the deliveries and we get our proportion of the profit without worry. Of course we have to pick our men, but we have been fortunate the first year we have tried this, and have had absolutely no trouble. In case there were time payments we had our local man handle this with his bank and pay us in full for our car.

Perhaps a number of other dealers are using this plan, but those who have not tried it will find that it is a good idea, especially now that there is such a shortage of salesmen. With best wishes for Motor World, we are, yours truly, W. D. MacMillan, Jr., per B. W. Cameron, Wilmington, N. C.

When the War Will End

Editor Motor World: I have just found out when the war is going to end and am sending the information on to you.—Will S. Strine, 1315 McGee Street, Kansas City.

(The following poem is printed on the back of one of Strine's business cards, which he enclosed with his letter. It is a most accurate statement as to when the war will end.)

Absolute knowledge I have none,
But my aunt's washer-woman's sister's son
Heard a policeman on his beat
Say to a laborer on the street
That he had a letter just last week
Written in the finest of Greek
From a Chinese coolie in Timbuctoo,
Who said that the negroes in Cuba knew
A colored man in a Texas town
Who got it straight from a circus clown
That a man in the Klondike heard the news
From a gang of South American Jews
About somebody in Borneo
Who knew a man who claims to know
Of a swell society female fake
Whose mother-in-law will undertake
To prove that her seventh husband's sister's niece
Has stated in a printed piece
That she had a son who had a friend
Who knows when the war is going to end.

Fruehauf Showing Increases

DETROIT, May 27—The Fruehauf Trailer Co. has enlarged its dealer organization and now has representatives in all states. It reports that business is increasing rapidly. Last February was the biggest month the company has ever had, but it doubled that business in March, when it secured $48,000 worth of business. The company is now manufacturing twelve different styles of trailers for various lines of business.

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The RETAIL NEWS

NORTHWEST

Park Grace, Archer, Neb., has bought the garage of Chris Masharison.

Dode Coleman and **John Bowers,** Brooks, Ia.. have bought the Brooks garage.

M. L. Knowles & Son, Fullerton, Neb., have opened a repairshop.

Earl Glasser, Little Sioux, Ia., has bought the interest of James Riley in the South Side garage.

C. D. Skinner and **Angus Purcell,** Magnolia, Ia., have bought the J. H. Leach garage, which they will conduct in partnership.

G. W. Watt, Morning Sun, Iowa, has sold his tire repairshop to G. W. Higgins of Winfield.

Edward Abbott, Odebolt, Iowa, has purchased the repair business from Nelson & Bingenheimer.

Walter S. Sutton and **Fred H. Dignes,** Odebolt, Iowa, have formed a partnership and bought the North Side garage.

F. J. Kroger, Rock Rapids, Ia., has bought an interest in the garage of C. C. Peterson.

Ralph E. Poole, Spencer, Iowa, has taken the agency for Hupmobile and Liberty trucks.

Fred Bird, Bigelow, Minn., has bought the garage business of Herman Ivors.

J. A. Lewis and **Wm. Sprague,** Deer, River, Minn., have bought the City Garage from A. McCallum.

H. Hansen, Eyota, Minn., has sold his garage to Frisch & Johnson, St. Charles, Minn.

Robertson & Layman, Grand Marias, Minn., have succeeded F. A. Winger in the North Shore Garage.

The Lewistown Auto Co., Lewistown, Minn., has been sold to Hendricks Auto Co., of Moore, Mont.

The Lincoln Motor Co., Minneapolis, which was formed to distribute the Mitchell car, has added the Bethlehem truck.

Culbertson Bros., 2612 Lyndale Avenue S., Minneapolis, have sold their garage to Bostrom & Aamodt.

V. J. Butterfield, 810 West Lake Street, Minneapolis, has bought the interest of his partner in the Butterfield & Younger Garage.

W. A. Smith, Minneapolis, has discontinued the garage at 421 East Lake Street.

D. T. Farnum, Minneapolis, has bought the Horrell V. Mastin Garage at 10 East Eighteenth Street.

Kennedy Service Garage, Red Wing, Minn., is the new style of the Overland Garage.

The Olympian Motor Sales Co., 596 University Avenue, St. Paul, has been formed to sell the Olympian car, by Samuel La Barre and Math. Demuth.

The Paramount Auto Exchange, St. Paul, will move from 179 East Sixth Street to 257 West Seventh Street, succeeding to quarters formerly used by the Roberts Motor Car Co.

R. E. Mittlestadt, Stewart, Minn., has leased the Yellow Trail Garage from Ed. ZumBerge.

Peterson & Ludvigson, Westbrook, Minn., have sold their garage, machinery and good will to Grant Ross.

Frank Gahlman, Windom, Minn., has bought the vulcanizing plant of George Dahl.

Hebard, Diltz & Plocica, Absarokee, Mont., owners of the Stillwater Garage, have dissolved partnership. William and A. Hebard will continue the business.

E. J. Arden, Phillipsburg, Mont., has bought the Richard Miles Garage.

George Stalker and **Harry Hayes,** Albion, Neb., have bought the Stalker Brothers garage from Lynn Rengler. The new firm name will be styled Stalker & Hayes.

W. Gutzmer, Auburn, Neb., has bought the garage of L. A. Newman.

Korell & Kannow, Culbertson, Neb., have bought the Central Garage.

Gus Hageman has bought his partner's interest in the Hageman & Clark Tire Co., Columbus, Neb.

Fresche Brothers, Falls City, Neb., have bought the Willard Service Station.

The Central Nebraska Motor Co., Grand Island, Neb., has moved to new quarters.

Nofsger & Snoke, Humboldt, Neb., have bought the Harding Garage.

Fred Robertson, Lewellen, Neb., has opened a repairshop.

Willis Pickering, Lincoln, Neb., has bought the interest of his brother, D. R. Pickering, in the Pickering Brothers Garage.

L. H. Spahr, Loup City, Neb., has opened a repairshop.

W. M. Fyffe, McCook, Neb., has bought a half interest in the Red Willow Auto Co.

Arnold & Blaine, Minatare, Neb., have bought the West Side Garage.

J. W. Tannehill, Norfolk, Neb., has opened a branch accessory store at Humphrey, Neb.

The E. I. Macey Battery Co., Norfolk Neb., has moved to a new building.

The Deidricks Auto Co. has moved to a new garage and salesroom at Norfolk, Neb.

Frank Muchow, Omaha, Neb., has bought the garage of J. L. Sweibel, Clarks, Neb.

G. A. Mitchell has opened a repairshop at Ord, Neb.

Stallman & Patterson have bought the garage and salesroom of A. V. Johnson at Stanton, Neb.

J. H. Eaton and **F. R. Strong,** Syracuse, Neb., have bought the Stover Garage.

L. Barchenger, Center, N. D., has bought the business of Charles Herman.

H. E. Hesse, Estelline, S. D., has bought an interest in the C. C. Frie Garage.

Ed Horst, Herrick, S. D., has bought the interest of Christ Reichel in the Horst garage.

The Blaha Garage, Lake Andes, S. D., has taken over the Miller Bros. Garage.

Wessel Bros., Mobridge, S. D., have bought an interest in the Kelley & Miles Garage.

F. E. Vickers, Pierpont, S. D., has bought the Pierpont Garage from Ed. Tobey.

Frank Blaha, Ravinia, S. D., has bought the Miller Brothers Garage at Lake Andes, S. D.

New Garages

Taylor Motor Co.....Griswold, Iowa
E. A. Anderson.....Hawarden, Iowa
Cooney & Miller.....Malvern, Iowa
Riverton Garage .....Riverton, Iowa
Cheney and Turnbull.....Spencer, Iowa
Harry Gilbert .....Fairmont, Minn.
Edward Baldwin .....Grand Rapids, Minn.
A. V. Nelson.....Hinckley, Minn.
P. J. Gregerson .....Little Falls, Minn.
Eppel & Ginkel.....Nicollet, Minn.
E. T. Eide .....Spooner, Minn.
P. F. Mowry .....Springfield, Minn.
H. F. Mann .....Wahkon, Minn.
Consumers Auto Supply Co.....Butte, Mont.
Weibler Brothers .....Sidney, Mont.
L. C. and J. R. Parkell...Silver Star, Mont.
Coulter & Gritz .....Ashburn, Neb.
Maze Garage (addition) .....Auburn, Neb.
Fred H. Bose .....Berlin, Neb.
Cords & Sass .....Grand Island, Neb.
Adam Waldschmidt .....Hartington, Neb.
Marshall & Kroening.....Lawrence, Neb.
William McCullough .....Omaha, Neb.
Love Burr Co.....Omaha, Neb.
Dan Davenport .....Omaha, Neb.
Jones-Opper Co. and Van Brunt Auto Co. ..... Omaha, Neb.
Buick Auto Co.....Omaha, Neb.
Blackstone Garage No. 2.....Omaha, Neb.
Reece Motor Co.....Pilger, Neb.
Kenny & Brown.....Stanton, Neb.
Hemphill & Cook.....Utica, Neb.
Jacobs & Mongar.....Valparaiso, Neb.
Charles Benson .....Claremont, N. D.
Peter Berringer .....Dickinson, N. D.
John Rolie .....Havana, N. D.
E. H. Bjorum .....Havelock, N. D.
King-Bruns Auto Co.....McHenry, N. D.
E. J. Pegge.....Valley City, N. D.
Guy Crawford .....Iroquois, S. D.
Niel Boath .....Nables, S. D.
L. M. & Harry Nelson.....Vienna, S. D.

SOUTHWEST

F. S. Koogler, Champaign, Ill., has purchased the entire stock of tires and accessories of the J. L. Fidler Motor Co., 322 North Hickory Street, and will hereafter operate the business in connection with his motor car sales agency. He is distributer for the Overland car.

Arthur Stafford and **Karl Lanterman,** Decatur, Ill., have organized the Auto Wrecking company and opened a plant at 146 Packard Street. They will handle parts taken from used cars and junk wornout cars.

Stouffer Brothers, Decatur, Ill., are remodelling their garage and have taken the agency for the Lexington.

H. S. Shurts has taken new quarters in Decatur, Ill., and will handle the Briscoe and Jordan.

The Decatur Auto Exchange Co., Decatur, Ill., has been organized to handle used cars. B. B. Burns is proprietor.

A. L. Mulvaney and **Oscar Lindgren** have purchased the Main Garage in Galesburg, Ill., and will style it Hudson Service Station.

Felix H. H. Flynn and **C. F. Williams,** Cadallac, Mich., will open a sales agency for the Acme truck.

The United Motors Service, Inc., Detroit, has opened a new service branch at Willis and Cass Avenues.

Edwards & Christ Co., Detroit, distributer of the Indian and Excelsior motorcycles, the Smith motor wheel and the Indian bicycle, has outgrown its quarters and has added 3,000 sq. ft., making a total floorspace of 6,000 sq. ft.

Philip H. Lichtenberg, Detroit, has acquired the distribution of the Columbia truck and trailer for Michigan and opened salesrooms at 14 Benton Street.

The Boulevard Auto Sales Co., Grand Rapids, Mich., has been appointed local distributer for the Master truck. The company also handles the Panhard truck and the Elcar. Messrs. Noblett, O'Donnell and Smith are the heads of the company, which was formerly styled O'Donnell & Smith.

C. B. Tompkins, Grand Rapids, Mich., has purchased the garage and service station owned by Dave Reid, and will operate it under the style Hermitage Garage & Auto Co. The company will handle the National, Auburn and Oakland cars.

The Mears Garage, Petoskey, Mich., has been sold to Claude Knapp.

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The Northern Auto Co., Petoskey, Mich., has secured the agency for the Fordson tractor for northern Michigan.

C. D. Keene & Son have organized the Akron-Armleder Motor Truck Co., Akron, Ohio, and will sell Armleder, Cincinnati-made trucks.

The Algoma Motor Car Co., Algoma, Wis., has been appointed Chevrolet dealer in Kewaunee and Door counties, Wis.

H. N. Bradford, president of the Brad-Ford Co., Appleton, Wis., Ford dealer, has been appointed dealer of the Fordson tractor in Outagamie county, Wis., under the no-profit distribution plan of Henry Ford & Son.

H. R. Seifert, Ellsworth, Wis., has purchased the Struve Garage in East Ellsworth and is remodeling and enlarging the storage rooms and repairshop.

The Brewer-Mosel Auto Co., Madison, Wis., announces that Piper Bros. have purchased an interest. The officers are President and general manager, O. F. Brewer; vice-president, B. J. Larkin; secretary, Sam A. Piper; treasurer, Charles E. Piper. The company is distributer of the Maxwell line in ten counties of Southern Wisconsin, the exclusive factory distributer of the Wisconsin Farm Tractor Co., Sauk City, Wis., both for domestic and foreign business. Connections already have been made with a New York exporting house to represent the Wisconsin tractor line in France, Italy and Spain.

The Marshfield Hardware & Auto Co., Marshfield, Wis., has been appointed Wood county dealer for the Happy Farmer tractor.

The March Motor Truck Co., Milwaukee, has been incorporated with a capital of $15,000 by Alton J. March, who has been appointed distributer of the Duplex F. W. D. and Clydesdale trucks. The headquarters service station are located at 215 Wisconsin street.

The Meiklejohn Garage Co., Waupun, Wis., incorporated recently with a capital stock of $50,000 to succeed J. W. Meiklejohn & Son, has changed its corporate style to J. W. Meiklejohn & Son, Inc.

New Garages

Gowdy & Gehring .....Bloomington, Ill.
Moore & Son .....Blue Mound, Ill.
Lookabaugh & Sullivan .....Decatur, Ill.
Russell & Powers .....Decatur, Ill.
Overland Sales & Garage Co.Englewood, Ill.
Farmers Motor Co.....Galesburg, Ill.
T. H. Nelson .....Herrin, Ill.
Gahm-McCormick Co. .....Streator, Ill.
Ralph Motor Co.....Cleveland
Big Garage .....Norwalk, Ohio
Windel Motor Co.....Portsmouth, Ohio
DeGroff & Hatch .....Beloit, Wis.
Smith Auto Co.....Beloit, Wis.
Ben Farness.....DeForest, Wis.
Union Auto Co.....Eau Claire, Wis.
W. P. Wagner.....Green Bay, Wis.
Blodgett Auto Co.....Marshfield, Wis.
Center St. Garage & Livery.....Milwaukee
E. A. Swendson.....Milwaukee

SOUTHWEST

A. L. Hendricks, Ft. Smith, Ark., is building a three-story addition to his garage.

H. M. Hosey, Buffalo, Kan., has opened a tire and automobile repairshop.

Johnson Bros., Canton, Kan., have bought the Sante Fe Garage.

Ellis Winkel, Kansas City, Kan., has opened a repairshop in the Heiner Bros. Overland Garage.

Lemon Viar, Council Grove, Kan., has bought the vulcanizing plant of George Hobbs.

H. O. Ellis, Elgin, Kan., has bought the garage of C. D. Thompson.

Dan Stover, Fort Scott, Kan., has bought the Palace Garage.

J. M. Wheeler, Halstead, Kan., has opened a vulcanizing shop.

Shearer & Lowrence, Iola, Kan., have bought the L. P. Gibson Garage.

Timmons & Barker, Independence, Kan., have bought the Wiswell Garage.

W. S. Coppers, Manhattan, Kan., has bought the interest of his partner, W. J. Buehler, in the tire and vulcanizing business.

A. L. Allen, Newton, Kan., has sold his Auto Tire and Supply Co. to the Shaw Cycle Co.

G. B. Shaw, Newton, Kan., has bought the Newton Auto Tire and Repair Co.

L. E. Ochampaugh, Stockton, Kan., has leased the White Way Garage.

The Anderson Sales Co., Topeka, Kan., have opened for business.

Nolan Alley's Automobile Supply Co., Yates Center, Kan., has moved to East Butler Street.

Jacob Meyer, Booneville, Mo., has bought H. G. Burt's interest in the Brownfield & Burt Garage.

John F. Shankle, Carrollton, Mo., has a half interest in the Sebastian Tire Co.

W. C. Bryant, Carthage, Mo., has moved his garage to a new building on South Main Street.

Fletcher Bros., Ellinwood, Mo., have purchased the garage of John Biler.

Bert Longnecker, Jefferson City, Mo., has bought the Willard Storage Battery Supply Store from Max Ruyle.

The Southwest Tire Co., Joplin, Mo., has opened quarters.

J. E. & M. Steeps, Kingsville, Mo., have bought the garage and business of O'Toole & Sheeren.

Labahn Bros., Lincoln, Mo., have bought the T. B. Smart Garage.

H. R. Powell, Marshall, Mo., has moved his garage there from Higby, Mo.

George Corrao, recently distributer of Globe Tires in Missouri, Illinois and Arkansas has turned his business over to the Sickle Saddlery Co., St. Louis, and has taken the retail agency for Allen cars. He will have headquarters with the Mound City Buggy and Auto Co., Allen distributer.

The Toliver St. Louis Tire & Supply Co. has been opened at 1206 North Kingshighway, St. Louis, as an agency for the Toliver tire. E. K. Yeaker and Dr. M. C. Etherton form the company.

The Auto Sales Co., 1909 Locust street, St. Louis, has been opened as an agency for Monitor cars

The Field-Lippman Auto Supply Co., St. Louis, has taken over the accessory business of the Vehicle Top and Supply Co., with the exception of Stromberg carbureter, Houk Wire wheels, Van Sicklen speedometers and Goodyear tires.

The Scored Cylinder Repair Works, has opened quarters at 325 North Jefferson Avenue, St. Louis.

W. A. Blake, Muskogee, Okla., has bought the garage of S. J. Miller.

Fred Yahn and **E. B. Coppage**, Perry, Okla., have purchased an interest in the Noble County Auto Co.

Harry Shields and **W. H. Cross**, Shattuck, Okla., have formed a partnership to sell Willys-Knight and Overland cars.

John Hicks, Tecumseh, Okla., has bought the Ideal Garage, formerly owned by Ballard & Miller.

J. W. George, Tecumseh, Okla., has bought the garage of S. E. Kaufman.

The Sleeper Motor Co., Tulsa, Okla., will soon occupy its new building.

Theo. Dressen, Amerillo, Tex., has bought the Fillmore Garage from Chas. W. Ebel.

The General Tire Co., Dallas, will soon move into its new building, at Main and Harwood Streets.

The Apperson Motor Sales Co., Dallas, Texas, has moved into its specially designed 3-story building, at Commerce and Pearl Streets.

The Texas Truck Co., Dallas, has moved to its new home on Commerce Street.

The Tippins Co., Marmon and Jordan distributer, Dallas, has leased the 3-story building at 2210 Commerce Street.

The McLarty Motor Co., Dallas, Nash dealer, has completed the remodeling of its building, 2021 Commerce Street.

The Automobile Tire Co., Dallas, has moved to a new location, at 2033 Commerce Street.

The H. W. Johns-Manville Co. will open an office at 424 Washington Avenue, Houston, Tex., on July 1.

New Garages

Little & Meacham.....Judsonia, Ark.
Freeman & Freeman.....Little Rock, Ark.
E. C. Toler.....Anthony, Kan.
R. M. Metzker.....Bolton, Kan.
Chas. Taylor .....Bonner Springs, Kan.
S. S. Combs .....Burden, Kan.
L. A. Marcoux .....Clyde, Kan.
E. T. Jacks .....Coats, Kan.
Merydith, Son & Co.....El Dorado, Kan.
Henvy & Henvy .....Fort Scott, Kan.
Frank Lindsly .....Iola, Kan.
The Inter-City Rapid Transit, Co., Junction City, Kan.
Gustin & Wilson.....Lamont, Kan.
Chris Hussinger .....Lawrence, Kan.
The Cline-Dow Garage Co.....Mora, Kan.
G. E. Peck.....Ness City, Kan.
Jackson & Hern.....Nekoma, Kan.
Gantz & Morris.....Olathe, Kan.
Kay O. Burt.....Osawatomie, Kan.
Robert Shroeder .....Osage City, Kan.
Cap Miller .....Sabetha, Kan.
V. J. Elwick.....Solomon, Kan.
Gould Larzelere (addition).....Troy, Kan.
Welter A. Mayer.....Brunswick, Mo.
J. E. Steeps.....Chilhowee, Mo.
Wm. E. Hill.....Clinton, Mo.
Charles Wolfe .....Clinton, Mo.
Clarence Auto Co.....Clarence, Mo.
Delaney Bros.....Edina, Mo.
O. H. Young & Son.....Hartville, Mo.
Otto Simon .....Jefferson City, Mo.
Henry Pribe .....Louisiana, Mo.
A. J. Wernert.....Louisiana, Mo.
Smith Bros.....Mexico, Mo.
The Willenbrink Motor Co...New Haven, Mo.
Fowler & Spence.....Unionville, Mo.
Z. A. Harris (addition).....Blackwell, Okla.
Boucher & Loatherman.....Ardmore, Okla.
Hendricks & McCoy Co...Muskogee, Okla.
George Hoebing .....Okarche, Okla.
Acton & Durcy.....Ponca City, Okla.
Munch, Fitzgerald & Stiles.....Stigler, Okla.
James E. Hale (addition)...Jefferson, Tex.
The Jefferson Motor Co.....Jefferson, Tex.
Jim Pl. Dowell.....McKinney, Tex.

MOUNTAIN

The Phoenix Motor Co., Phoenix, Ariz., has been made distributer for Studebaker cars and Sandusky farm tractors for Arizona.

The Auto Consignment Co., Phoenix, Ariz., has opened quarters at 514 North Central Avenue. The firm is composed of H. V. Bennet and C. E. Hutchler of Los Angeles, Cal.

Ray W. Ward has become a member of Payne, Saufley Rubber Co., Phoenix, Ariz.

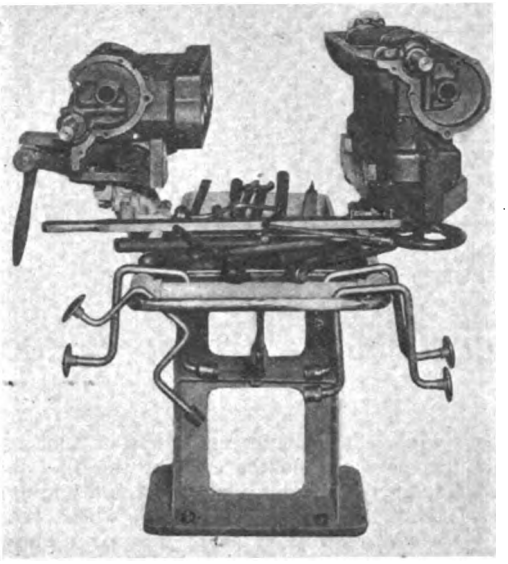
The Griffith Coal Co., Riverton, Wyo., has bought the garage of J. C. Fowler and will conduct it, adding a repairshop.

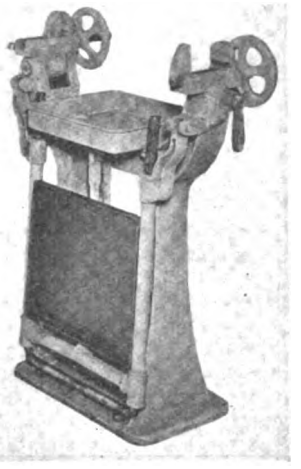
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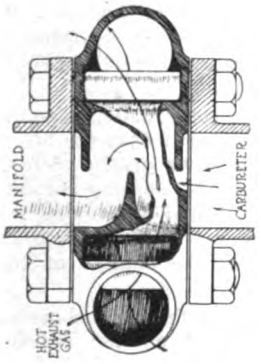
Accessories

DIXIE ASSEMBLY AND REPAIR STAND

A stand for overhauling and repairing front system, rear axle and engine of Ford car. Has two vises, one on a swivel and the other to tip sideways. Extension telescopes and is long enough to support universal end of propeller shaft and radius rods. Has oil and grease catch pan and pan for holding tools and parts. Weight 175 lb., price $50. With two clamps for engine overhauling, $90; with upright clamp, $75; with flat clamp, $65. — Service Station Equipment Co., 233 West Schiller Street, Chicago.









FISH & PERRY HOT-SPOT

It is now possible for every car owner to have a hot-spot on his engine to assist in the proper carburetion of his fuel. The hot-spot made by Fish & Perry, 1906-08 Wabash Avenue, Chicago, is designed to fit between the flanges of the carbureter and intake manifold and provides heat from the exhaust to the incoming gas. It is not a hot-spot manifold, nor does it pre-heat the ingoing air. Its working principle is to make the fuel leave the air at its turning point and land it on a hot surface, where it is thoroughly dried out. The hot-spot is made to fit standard manifold and carbureter flanges and the outlet and inlet for the exhaust gases can be arranged to suit any installation. Installation requires drilling a hole in the exhaust pipe and tapping the latter for a pipe nipple and elbow. From this a flexible pipe carries the burnt gas through the device.

SIMPLEX TUBE VULCANIZER

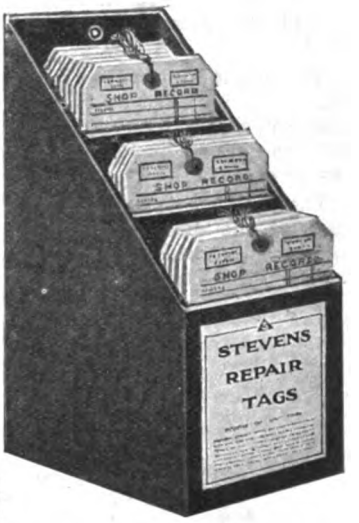
This is a small clamp type tube vulcanizer using solid fuel for generating heat and vulcanizing ordinary punctures in 5 minutes. Complete outfit, including clamp and 12 patches, $2. Additional patches, $1 a dozen.—Simplex Auto Devices Co., 311 West Fifty-ninth Street, New York.

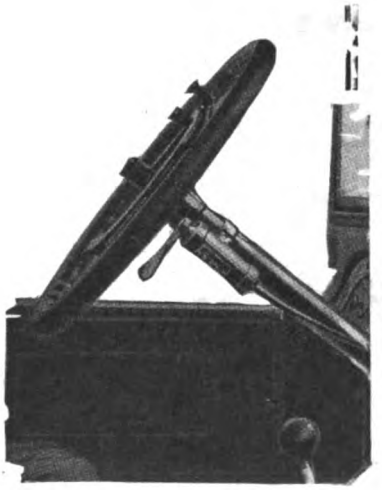
ROSE LATIGO FAN BELT FOR FORDS

Fan belts for Fords with riveted splice and heavy waxed lock stitch, reinforced metal sewed or full latigo metal sewed. Price 50 cents each. — J. H. Haney & Co., Hastings, Neb.

STEVENS TAG FILE

As an aid to repairshop bookkeeping, a Simplified Account File has been designed. It is to be used with Stevens repair tags and has three divisions, one for tags on jobs which have been delivered and paid for, another for tags on work delivered but charged, and a third for a supply of new tags. The tags give complete information concerning repair instructions, material used and time consumed. The file is given free with each order for 1000 repair tags, which sell for $4 per 1000.—Stevens & Co., 375 Broadway, New York.

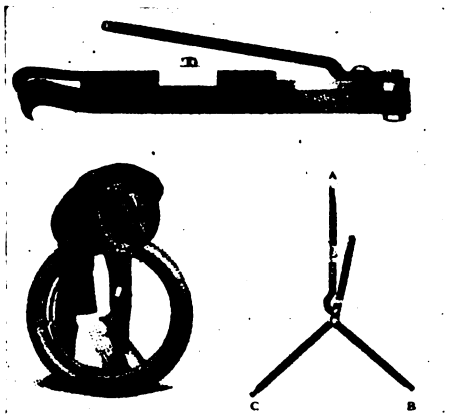




ECO LIGHT CONTROLLER

This is a miniature rheostat contained in a cylindrical box clamped to the steering column, just below the wheel. A lever governs the amount of current flowing through the headlamps and thus regulates the amount of light given by them. Clamps are made for all sized posts. The controller is made in three sizes, No. 1 for Fords, No. 2 for cars using 2- and 2½-amp. lamps, and No. 3 for cars using larger lamps. The controller weighs 22 oz., is nickel plated, and sells for $7.50. —Western Mfg. Co., Oskaloosa, Iowa.

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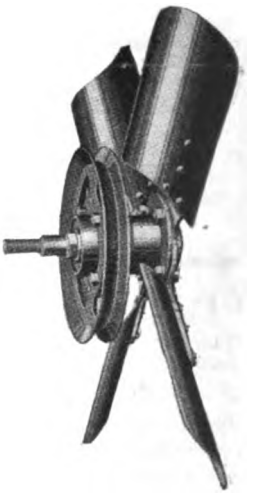


LAWCO RIM TOOL

The Lawco rim tool is a four-piece steel device which can be used to open any transversely split demountable rim. It is attached at three places to the rim and it is possible to obtain sufficient leverage to break even badly rusted latches. The tool can also be used to expand rims in place inside a shoe. The tool weighs 5½ lb. and can be collapsed into very small space. Price $3.50.—F. H. Lawson Co., Cincinnati.

NEW OAKES FAN DESIGN

The accompanying illustration shows the latest Oakes radiator fan. This design has been under development for 5 years and pressed steel construction throughout. It has enclosed bearings, which exclude foreign matter and enable the lubricant to be retained for a long period. Modifications in design can be made to accommodate either a flat or V-belt or to suit the fan for either right-hand or left-hand rotation. The fan can also be made of any diameter. The Oakes Co., Indianapolis.



Turbine Principle in Trader Kerosene Carbureter

THE Trader turbine carbureter has been designed for vaporizing low grade fuels such as kerosene, and in order to do this successfully, several radical features of construction have been adopted.

The main air supply is taken from a stove on the exhaust pipe into the throat of a small turbine which directs it against the blades of the turbine rotor, revolving it and the attached disc on the same shaft.

This warm air revolving in the turbine housing is in direct contact with the disc and evaporates by centrifugal force the fuel spread thereon from a jet at the center of the disc.

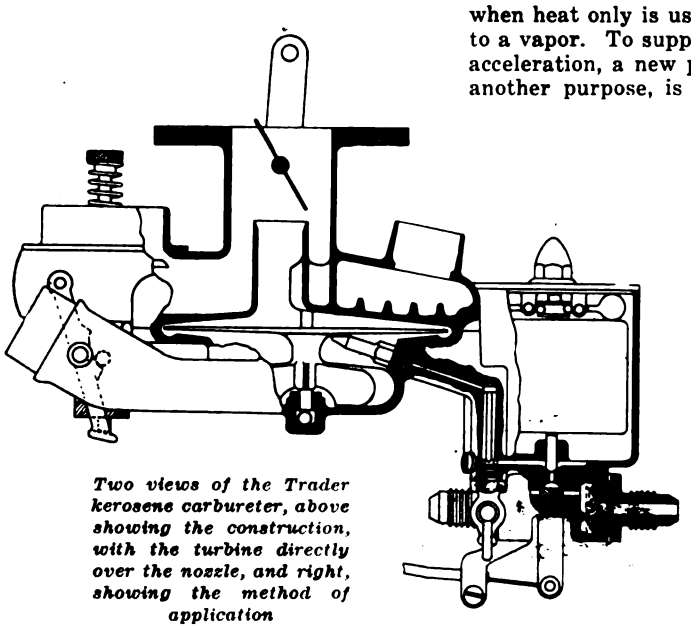
The fuel passes around the circumference of the disc, over the circular exhaust-heated wall of the disc casing at such a high velocity as not to heat the vapor, but should any drops of fuel try to pass around the edge of the disc, the sudden change of direction would impinge them against this hot wall, where they would readily vaporize and pass along with the vapor from the disc, entering the throttle passageway through a throat directed so that the air from the auxiliary air valve at high speeds will surround the gas in its passage through the manifold.

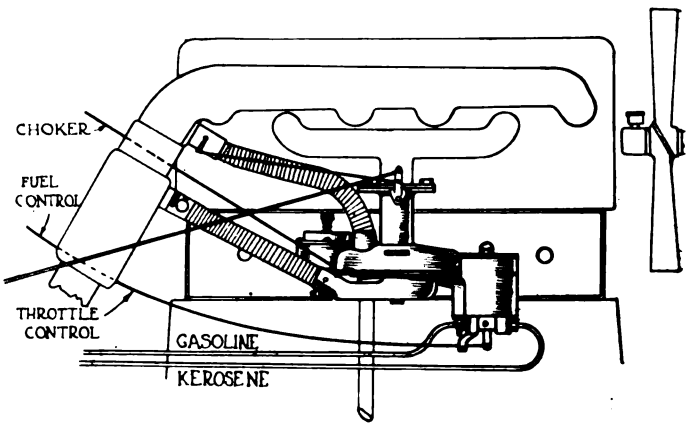
At normal engine speeds the Trader carbureter is claimed to vaporize the fuel completely, it being drawn from the jet and spread over 56 sq. ft. of revolving surface, from which it is evaporated by the revolving air. The addition of cold air from the auxiliary air valve reduces the mixture to the proper temperature.

This method of low-grade fuel vaporization does not require such a high degree of heat, hence there is not the volumetric loss of efficiency which prevails when heat only is used to reduce the fuel to a vapor. To supply a rich mixture for acceleration, a new principle, performing another purpose, is used. Upon sudden opening of the throttle, a higher vacuum is produced in the disc chamber, giving additional fuel for acceleration until the turbine speed equals that of the air flow. Likewise at sudden closing of the throttle, the flywheel action of the turbine rotor and disc creates a pressure in the disc chamber diminishing the fuel flow from the nozzle. Bearing lubrication is from the fuel itself, or by an oil reservoir to one bearing and through the drilled shaft to the other bearing.

The float chamber construction is something new, using a single float for alternate operation of the two grades of fuel, with the float always floating in the lighter grade of fuel, and permitting the reversal of fuel supply to the engine almost instantly with the change of the three-way valve.

Other models of the Trader carbureter will shortly be placed on the market which will burn still heavier fuels, and having an automatic fuel change from the lighter to the heavier fuel when starting. The carbureter is made by R. V. Trader & Co., McKeesport, Pa.





Two views of the Trader kerosene carbureter, above showing the construction, with the turbine directly over the nozzle, and right, showing the method of application

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Show Parts to Farmer Truck Buyer

He Wants to Know About Your Service, Says McDaniel

WHEN the farmer buys a truck the first thing he wants to know about is service and the parts stock.

The first thing the dealer should think about is teaching the farmer what he can and can't do with the truck.

These, says J. A. McDaniel, representative of the Wichita truck in Dallas, Tex., are the big thoughts in selling trucks to farmers to-day, which field, he states, is a comer.

"When a farmer considers buying a truck the first question he asks is, 'What kind of service do I get?'" said McDaniel. "Let me see your parts. It is not a question of what the truck is worth in dollars to the farmer when he buys it, but what it will be worth to him after he has bought it. The average farmer who has never used a truck doesn't even know what the word service means. On the other hand, that is the first thing a man who has used a truck thinks of asking and that not only applies to the farmer, but to the business houses that are using trucks.

Must Educate Farmer

"There are many ways a farmer may use a truck on his farm and that is just what we must do, educate the farmers in the use of these trucks. Up to this time the farmer has thought the only use he has for a truck is to carry his produce to market. That is not true. He can use the truck to haul his hay from the meadow to the barn. He can use it to haul his grain from the thresher to his bins or granaries. He can haul his wood from the woods to the house, but in most cases he must have hard ground over which to run his machine or it will not be of the advantage to him it should be.

"The farmer cannot do everything with a truck and he ought to be shown that from the very start. It's all bunk to try to teach him or to try to tell him he can. He must be taught just what he can do and what he cannot do. When a dealer tries to teach the farmer to do things which cannot be done then the dealer is hurting his own business. The average farmer in the Southwest particularly doesn't expect anything very much from his truck because he doesn't know anything about them.

"Unless a farmer buys his trucks where he can readily get his parts he is soon discouraged in the use of trucks. This hurts our business, too, because if a farmer has a breakdown and has to wait two or three weeks to get his parts from the factory his truck is idle and he is discouraged in its use. He also discourages others from buying. Few farmers in this section of the country, however, have bought trucks unless they can get the service and the parts. That is the all important question now in selling trucks to farmers."



J. A. McDANIEL

Representative of the Wichita truck in Dallas, Tex.

Would License Gasoline Sellers

PROVIDENCE, R. I., May 27—The licensing of all garages, dealers and other persons holding and disposing of gasoline is proposed in an ordinance pending before the City Council. The fire commissioners appeared before the ordinance committee to-day and urged its adoption. It is claimed that this ordinance would greatly reduce the fire hazard and bring the city a revenue of $1,500 this year and much more next year. The licenses are to be issued by the fire commission, and it is proposed to have the battalion chiefs see that the ordinance is enforced. The license fee proposed follows: Five to 250 gal., $1; 250 to 500 gal., $2; 500 to 1000 gal., $3; 1000 to 5000 gal., $5; 5000 to 10,000 gal., $10; 10,000 to 25,000 gal., $25; 25,000 gal. or more, $50; portable tanks, $5; tank wagons, $10.

Open Des Moines Ford Plant June 1

DES MOINES, May 27—The new million dollar plant of the Ford company in Des Moines will be put in operation June 1. Taking over of the Ford plant at Omaha for Government supply purposes will cause the local plant to be rushed to its final completion, and P. F. Minnock, general manager, will move from the temporary plant not later than June 1. At the start the plant will employ 400 to 500 men and turn out 200 cars a day, but it is expected that within three months 1000 men will be employed and the output increased to 400 cars a day. Manufacture of Ford cars for the States of Iowa, Nebraska, part of Kansas and part of South Dakota will be handled at the Des Moines plant.

Shortage of Washers in Hartford

HARTFORD, May 27—One of the largest car selling agencies in this city has given up washing cars and in future will do very little of this, for the reason that good washers are scare and such as can be secured have to be paid high wages. Furthermore, it has been definitely determined that a profit cannot be realized on this sort of work. Washers in Hartford are now paid $21 a week or better and are hard to get at that.

Test Class A, AA and B Trucks

WASHINGTON, May 27—Rigorous tests have been made by army officers for the past week of the class A, AA and B standardized war trucks and of the other trucks of the various army divisions, including the Quartermaster, Signal and Ordnance Corps. These tests are the result of intercession on the part of those favoring the standardized truck program with Secretary of War Newton D. Baker.

Shows Truck in Small Town Public Square

RUSSEL P. TABER, Hartford, Reo and Republic truck distributer, does not think it worth while or sound business to wait for prospects to walk into the salesroom and buy trucks. At this season of the year farmers especially have very little time to spend in looking over motor trucks. The weather is fine and they are making the most of it in setting out their plants and all that sort of thing.

"But," reasoned Taber, "if the farmers cannot come to me what is to prevent me from going to the farmers? Nothing, of course," and so Taber has gone to the farmers.

One afternoon he had a 8000-lb. Reo truck on display in the vicinity of the town hall in Collinsville, a thriving manufacturing and farming village some distance northwest of Hartford. And the fact that the truck was to be there was duly advertised in the daily papers, five columns wide and 12 in. deep. The advertisements were printed on the same page with the Collinsville news. In addition to the newspaper publicity Taber sent out invitations to the farmers informing them of the presence of the car and men to tell all about it. This sort of thing will be done every Saturday afternoon for the next few weeks, and the important farming communities in Hartford County will be thus favored.

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Is It Unpatriotic

To Spend Money for Advertising At This Time?

What do YOU think about it? The story that follows is a paper prepared for the recent World's Salesmanship Congress in Detroit by W. O. Rutherford, sales manager of the B. F. Goodrich Co., Akron, whose company has to do with the spending of thousands of advertising dollars annually. He says failure to advertise is disastrous, even though the product be all sold. Read why. It applies to the business of every dealer, jobber, garageman and manufacturer.

THE United States Government has not established any statute declaring it illegal to solicit advertising. Therefore to the question, "Is It Illegal and Unpatriotic to Solicit Advertising and Stimulate Sales at This Time?" I answer "No."

Yet in time of war the unexpected is always happening. Everything is volcanic. Thus it is within the bounds of probability that some legislator might misconceive the function or the cost of advertising and propose a law similar to that indicated by my subject.

If such an enactment as this were made it would imperil the general business interests of the country, consequently it is proper that we should to-day weigh the several considerations involved in the case. I shall consider it my present mission to demonstrate that advertising and advertising effort—that sales and sales effort, are just as much a part of our economic fabric as it is to grow wheat or potatoes, or to manufacture articles of daily use.

Benefit by Experience

This nation has been spared some of the terribly costly moves experienced by our allies in the early stages of the war. Again and again we must recite these lessons so that we may know them by heart. What happened in England is peculiarly instructive. August, 1914, was characterized by the worst trade panic England ever saw.

Advertising in the London dailies dropped to less than half the July figures. The public stopped buying and began to hoard money. People wore their shoes to shreds. It was expected that there would be unemployment on the widest scale and a huge "Prince of Wales" fund was collected to feed the poor. This fund was never needed.

What did England do? *She called together her advertising men and made plain that the industries had to be kept alive. This gospel brought advertising back to its pre-war level.*

"That which keeps our business going to-day," said Selfridge, London's biggest merchant, "is the fourteen and a half million pounds a week of our national payroll. It comes out of the bank on Friday, goes over the retailer's counter on Saturday and back into the banks on Monday.

Spending an Essential

"If advertisers wouldn't advertise, people wouldn't spend, and this would mean that this great sum would be impeded, business would slacken and national prosperity would suffer."

This was England's answer to the problem and though I do not apprehend that our government will take any step adverse to our national merchandising interests still it is well to define clearly some of the fundamental principles involved in the transaction of daily mercantile affairs, commonly called business.

A clear declaration of principles is a wonderful force for harmonizing men's minds and welding everyone into the universal thought. Our Chief Executive has made free and general use of this policy. Through his state papers he has swayed the nations of earth. *I presume one of the greatest documents ever written is President Wilson's recently issued international message setting forth "Fourteen Considerations in the Program for World Peace."*

It is in behalf of those fourteen considerations that the Allied Armies are now fighting the Central Powers. It is in such declarations that we find truth in the statement, "The pen is mightier than the sword."

Nine Reasons Why

In a more humble fashion we may well search out the fundamental considerations involved in our business life and after making a thorough study of the economics of the situation I submit the following nine declarations as being fundamental to our business life:

1—Since only one cent out of every trade dollar is spent in advertising, our entire national advertising budget *cannot, even of itself, be considered an extravagance.*

2—Advertising speeds up production and reduces the selling expense, thereby making the cost to the user less than would otherwise be the case.

3—*The quickest way to help Germany win the war is to close up shop; fail to provide labor, and restrict the circulation of money.*

4—We have recently learned the value of the expression, "In time of peace prepare for war." We have yet to learn that advertising during the war prepares for the commercial war after the military activities are over.

5—America's industrial greatness is due largely to advertising, and *failure to advertise, even for a temporary period, will drag our institutions downward.*

6—Advertising gives us national unity and oneness of purpose. It institutionalizes America. *Without it we lost the value of the world's greatest trade-mark —"U. S. A."*

7—Unless we support the press by our advertising, newspapers and magazines will suspend publication and *our national life will soon flow as stagnantly as it does in the veins of a Mongolian peasant.*

8—The man who under fire abandons his trade-mark or allows his business to shift for itself *is a business slacker who is helping the enemy to win.*

9—Just as we need the farmer to grow grain, the engineer to make airplanes, the chemist to make ammunition, so we need the advertising man and the salesman to *keep the wheels of our industries turning faster than those of any other nation.*

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You will observe that it is my contention that a vigorous industrial condition is necessary to win the war. This seems self-evident, but occasionally I see signs which tend to make me believe that the entire body politic is not in harmony on this point; but it is fortunate for us that our national leaders are keen, far-sighted men, and I was strongly impressed recently with a statement made by our Secretary of Commerce, William C. Redfield. He said:

"The problem at hand is to win this war. It is not to be won by assuming that we shall win it or by anything less than putting our whole force into it.

"What does it mean to put our whole force into it? The phrase cuts deep. For example, if we spend for our selfish pleasure that which we could otherwise put into Liberty Bonds, we are not putting our whole force into it. If we have land which we fail to cultivate, if we have work to do which we are not doing, we are not putting our whole force into the war."

He goes on to say: "We are free American citizens now but if business fails to do its part the Kaiser will win the war and we shall be subject to the will of Germany. The right of Americans to think for themselves, to speak for themselves, and to act for themselves, is at stake. Then let each of us find out what he is not doing and get at the doing of it."

Do More, Not Less

You see Secretary Redfield does not tell us what we must not do but he tells us to do more things and to put our whole force into it. This is good gospel in my judgment.

Sometimes we assume that the war has changed the fundamental principles of economics. It has not. For instance, you were long since taught that the equation which governs business is

Supply = Demand

War has not changed that principle. The only thing that war has done is:

First—To increase the demand.

Second—To change the channels of consumption.

Our problem, then, is how to increase our goods in the face of a heavy shortage of labor due to army conscription. It also involves a readjustment to the degree that we shall produce MORE of certain lines of goods coming under the head of war necessities and LESS of the things which minister to our love of ease and luxury.

Regulation Automatic

The underlying elements are not so complicated after all, but, gentlemen, *we cannot achieve one step upward in the curve of our national economic well-being by pulling down anything.* That which is not essential will slough off as naturally as a snake's skin in the spring. We need no legislation against it.

Thus if advertising needs to be diminished or speeded up, it is self-governing, and I sincerely hope that no bars or restrictions will be placed in the way of the free sway of honest advertising and that no impediment will be placed in front of our newspapers and magazines.

Few of us realize the tremendous power of the press. It molds public opinion, guides the impulses of the masses. Exalts or debases the minds of the people. It sways the destiny of nations. Did you ever stop to consider how long Germany could hold out if the German Government did not exercise rigid supervision and censorship over the press?

In this country, as in France and England, the press has been an invaluable aid not alone in stimulating enthusiasm, strengthening courage and disseminating information, but in assisting to float our war bonds as well.

Liberty bonds require advertising. Every other movement or article connected with our national development also requires advertising.

It is just as important that our people at home be educated in the determination to win the war as it is that our soldiers and sailors be trained to fight properly in the trenches of France or on the high seas. It is our sublime purpose to defeat the enemy by force of arms, but how much more glorious will the victory be if the advent of peace find America united, vigorous, virile—and with a determined smile facing the reconstruction problems.

Gentlemen, through the generations we have been freemen; let us stand on our feet and be freemen still. We are in harmony with the principle that the way to win is to strike with all our force. We must not choke business.

We must not muzzle the press even on its advertising pages.

A few weeks ago there appeared in a certain magazine a story bearing the title, "The Thunder of Silence." The theme was the suppression of a notorious pacifist, always conspicuous in the news columns, by applying a "silence treatment." No newspaper mentioned his name again; *he passed into oblivion—forgotten.*

"Thunder of Silence" and America's Mills

This demonstrates in a forceful way that the trade-mark which is not brought before the public eye in constant repetition, that the product or firm name that is not persistently advertised—*one and all pass quickly into dry-as-dust oblivion.*

We cannot afford to apply "The Thunder of Silence" to the products of America's mills and factories, but let us rather take the skill and talent of every man and woman and apply it where the most good will result, so that the words of Thomas Jefferson, "We are a united people, brave to front any attack" may still ring true and clear in our ears.

Why I Bought That Car

I went down to Milwaukee one Saturday night last fall, just before the roads broke up, to look over a number of new cars to which my choice had simmered down. I reached the salesroom at 461-465 Broadway early Sunday morning. A salesman was assigned to me and gave me a fine demonstration. I told the manager that the car looked good to me and I would come down again next Saturday to drive it home, the distance being about 350 miles.

The salesman evidently saw me slipping through his fingers and he said: "Take the car now and drive it home." I answered that it would be impossible, as I was not dressed for such a trip and, what was more, it would take a couple of days to transfer the funds to cover payment for the car—something like $1,385. The salesman urged, "Date your check ahead a couple of days and take the car."

I had never seen the young man before and said, "Aren't you taking chances with a perfect stranger to offer that?" Quick as a flash, he said, "I am not afraid to trust a man who wears the button you do," referring to my Shriner's lapel emblem. My answer was flatfooted. "I am not trying to do business on that button." He said, "And I wouldn't on mine, if I was lucky enough to be privileged to wear one. Yet the fact that you belong to that order fully warrants me to make the offer."

I drove the car home the same day, feeling as one who has just left church and heard a good sermon that has touched the better side of the inner man. It made me feel that the other fellow's glass showed the same reflection as my own.—Simon Clough, lumberman, Marshfield, Wis.

Daily Sales Conference

There is one thing that stands out more than anything else in the writer's mind as far as our organization is concerned for the benefit of sales promotion, and that is that we have a conference every Monday morning of all the salesmen, superintendent, stock clerk, and in fact the heads of all departments. This conference is held at seven o'clock in the morning during the heated term, and eight o'clock during the winter months. There is no business important enough for any man to miss this conference.

Everything is gone over personally with each man with the others present, and if there is any ill feeling or friction among the salesmen it comes out there.

Sales lost to competitors are gone over carefully, and if we are successful in obtaining business in an odd way from a competitor that is credited to the man.

There are two large blackboards in the conference room, showing the sales made last year by each man, by weeks, and one showing the corresponding sales for the present year. It is very interesting to note what keen competition there is among the salesmen to better their records, and it is also astonishing to note the amount of interest they have in outdoing their last year's record.—Edward J. Otis, Utica Motor Car Co., Utica, N. Y.

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"The Liberty engine is as good as, if not better than, any engine that has ever been created . . . . It is being produced in quantities—"*

CHARLES F. KETTERING
President, Society Automotive Engineers

OUR country has produced several articles that I believe have become classic. I believe that none of us doubts the success, the fundamental success, of the recent Government standard designs of automotive apparatus. Any of you who have been around the plants where the articles are being built must be impressed, regardless of bias, with the fact that the product is fundamentally correct.

We have produced the so-called Liberty engine. I found to my surprise the other day that many people did not know that one of these had ever been completed. The lack of appreciation by many people of what real manufacturing is, of what is necessary to produce things so essential as these Government standard designs, has caused a waste of much printer's ink and paper. National issues have developed out of the length of a bolt and the depth of a radiator to an extent that I did not believe possible.

Some Cooling Problems

In ordinary manufacture if a radiator did not cool an engine under certain conditions, we would make it a little bigger. Coming to the question of what cooling really is, to-day we have fairly nice weather in New York; yet in 15 min. from the time you leave the ground here you could reach conditions of a temperature of zero or below.

The question is, do you want the radiator so large that you can cool the engine perfectly at wide-open throttle going up the first 10,000 ft., or do you want the radiator so proportioned that it will cool the engine properly or keep it warmed properly up in the business district? Nobody cares anything about this port of entry down here. Up there is where you are doing your work. There are a few problems regarding the matter of cooling that are more a matter of opinion than of mechanism. We know enough about the subject of radiation to provide the particular type of cooling needed without making it a national issue.

They say we are having all kinds of difficulty with the engine; that we are having trouble with the oiling. I have seen a good many engines of all sorts, and I believe that we have not had more trouble with the Liberty engine than is usual in engine manufacture. As a matter of fact in every new model of engine produced there is always a certain amount of difficulty in the design of the lubricating system.

I am going to give you a very simple account of an incident in Dayton the other day. Two gentlemen from Chicago came there to see me regarding some business matters. Each of them had two sons in the Aviation Corps. They looked worried, and I said to them:

Letting In the Light

"What is wrong with you fellows?"

One said: "If you had two sons in the Aviation Corps you certainly would be worried. We have no engines, airplanes or anything else. This confounded Liberty motor is a failure, a great joke perpetrated on the American public. I am going to Washington."

I said: "There is a train at 3 and another at 8; just skip the 3 and take the 8 o'clock train."

We went to an airplane factory in Dayton and came to one lone Liberty engine. He said:

"My God! Have they got one done? Have you had this in a plane?"

I said: "No, never had this in a plane."

He said: "Why don't you put it in a plane?"

He walked about and finally into an aisle and saw about 75 Liberty engines in a row.

He asked: "What are they?"

I said: "Liberty engines."

"Where did you get them?"

I said: "The name-plates on them tell where they are from, some from the Packard company, some from the Lincoln Motor Co."

He asked: "How long have you been getting them?"

"Right along."

"How many have you had?"

"Two hundred and fifty or three hundred."

He said: "I was told in Chicago the other day they never made one of them."

I said: "We can't control what you are told in Chicago; we can only take the engines as they ship them in."

He went about and saw one of the airplanes and that we had actually built a machine.

He said: "You can't get the engines off the ground."

I said: "Partially true; you can't get them off the ground unless you run them."

He asked: "How fast do they go?"

I said: "That is a question. Would you like to ride behind one of these engines. I can't show you by conversation anything about it."

He said: "I have never been up."

I said: "You had better take your initiation right now. Here is a stop-watch. Just as you leave the ground press that and when you pass 10,000 ft. press it again, and when you come back tell us."

We sent him up and he came back. Talk about a transformation. He was not the same fellow that went up at all. He had forgotten everything about being scared and being 10,000 ft. in the air.

He said: "My God, we got up 10,000 ft. in a little over 7 min."

We said: "If you would like to take another ride, we want to show you how fast we can go."

He said: "No, I don't care to go again, but my friend will go on this trip."

The friend went up and we ran him over a measured course and showed him we were getting better than 135 miles an hour.

Those men went back to Chicago contented with their experience. They said: "Wait till we get back there; we want to see some of those fellows who have been telling us that we have no engines or airplanes? They had some facts they had gotten first-hand.

A Simple Fact

There are a few very important facts and here is a very simple one that perhaps you have not thought of. The Liberty engine cannot read; it has no ears; therefore it does not know anything about the criticism that is going on about it. Otherwise I do not know whether some of them would get off the ground. I think they would be too discouraged to try. But knowing nothing of the situation, they are doing admirably, and the engine to-day, as near as I have been able to analyze it, knowing something of aviation engines, is as good as if not better than has ever been created.

It is being produced in quantities. They shipped the thousandth engine several days ago, only two companies having been in production. One of these has been in production for about 60 days.

**Paper read before the Metropolitan Section of the Society of Automotive Engineers.*

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The Ford Motor Co. has tested its first engine and put it through the official 50-hour test. The same thing is true of the Cadillac Motor Car Co. and of the Buick Motor Co. The Marmon company is, I believe, putting its engine through the test now.

It has not been a year since the first one of these engines was put together experimentally. It is a new product, a new order of things, which people are not familiar with. It is perhaps because we do not analyze these conditions that so much criticism and gloom have spread over the country. There is only one thing that will answer the criticisms, and that is the engine itself. But I think it will be very gratifying for you to know some of the simple facts. We can show you things in Dayton that would gladden your hearts and brighten your eyes. And Dayton is only one place of activity in this matter.

When I was coming down from Chicago the other night two fellows were talking in the smoking compartment. One said:

"I understand this plane they are making in Dayton can't get off the ground; a friend of mine was down there the first day they tried it."

I said: "That is right, I was there."

He asked: "Have they ever been able to get it off the ground?"

I said: "Yes, getting an airplane off the ground is like the case of the fellow who bought the barrel of apples from an Irishman and said, 'No, sir, I don't intend to buy any more apples from you, because the other barrel you sold me had a few good apples on the top and the rest were worthless.' The Irishman said, 'My friend, it is not my fault; you opened the barrel at the wrong end.'"

The momentous occasion which was mentioned, and of which an account was published, happened in this way: A manufacturer desired to try out some propellers. He sent four experimental ones. His letter read something like this:

"I am sending you four experimental propellers. I don't believe the number one propeller will fly the machine, but it is very important that, if you get into the air, you record the revolutions per minute at which the engine is turning. I think the number four propeller will be perfectly satisfactory, but in order to get the data I need I am sending all four."

Now the men who unloaded the propeller boxes did not know anything about the letter; they unloaded them out on the field where they were going to make the test, and the boys opened the one nearest the machine, which happened to contain the number one propeller. This propeller was tried on a plane, marked no good and put back into its box. It had not run at a sufficient number of revolutions to make a flight worth while. The next propeller which happened to be lying there was number four, and a very nice flight was made with it.

This was the basis of all the comment. It was purely a matter of chance which box was opened first; like in the case of the barrel of apples. In any other industry you could have tried fifty propellers and nobody would have taken any notice of it, but here was a national issue.

There is one thing we ought to get into our heads that I think we have not appreciated entirely, and that is the fact that if not a single mistake had been made in any one of the Government proceedings we would have been delayed from three to four months in obtaining the amount of tools needed because of the congestion in transportation, in addition to the extraordinary demand.

Some months ago I asked a leading automotive manufacturer connected with the aircraft production whether he expected to be able to get the tools he had to have.

He said: "In the last 10 years I have put over $25,000,000 into machine tools, and there is not a manufacturer who is not going to give me what I want." He ordered his gear cutters and lathes and milling machines and what-not.

When I saw him a few weeks later he said, "Look at this sheet. Those are my delivery dates. Now don't you think I can get the stuff? I am an old hand at this game." That was all right until the Priority Board said, "These tools are needed more elsewhere." He got only a small percentage of the tools he expected within the specified dates. He endeavored to get thread gages and other articles, and the same thing happened. I saw him a few weeks ago and he had not received all his tools yet. There is universal delay in such things and it is always interpreted against the particular thing that the particular critic wishes to criticise.

The airplane products are coming along fast. There has been some delay on account of our inability to decide finally on machine gun equipment and types of bombing devices. While waiting until final decisions were received from the other side (the difficulty has not been all on this side; there has been a change of mind on the other side not infrequently), many a thing which was started has been stopped and then started again.

We have had confusion on account of changes in specifications made here. There have been put into the great Governmental and industrial organizations thousands of people who have been unfamiliar with manufacturing methods. We have had that to contend with.

That sort of thing is wearing away. It is becoming more appreciated that people who have spent all their lives in the shop really know something about it, and that those who have been able to make things before are able to produce for the Government.

We have cleared away a great lot of this preface to our book. It has had a lot of fly-leaves in it; but I believe we are right up to the reading matter now.

Last week we shipped from the factory with which I am connected forty-two of the fighting machines with 75 per cent spares. When you ship four machines you really ship seven; so that if you ship forty machines, that is really equal to seventy machines. That production is coming right along.

We have done in our method of manufacture what all of our American aircraft people have done; it is possible to build aircraft to-day by the interchangeable method just as it is possible to make anything else, and that is being done.

Automotives at Dairy Show

NEW YORK, May 25.—The National Milk and Dairy Farm Exposition, held the week of May 20-25 at Grand Central Palace, included in its exhibits five tractors, one tractor attachment, one truck and two farm lighting and power plants. The E-B tractor was shown by Edward Ehrbar, Inc., distributer for New York State, the Sandsky by C. B. Cook of Newark, N. J., the Monarch and Staude Mak-A-Tractor by the Farmers' Bureau, Inc., the Cleveland tractor by the J. S. Woodhouse Co., and the Happy Farmer tractor jointly by the M. Maloney Co., Syracuse, and the Hartz Machinery Co., Philadelphia. An autocar truck was in charge of the New York Autocar branch and the Delco-Light and Lalley Light farm lighting and power plants were shown in operation lighting lights and driving various dairy machinery. These automotive exhibits attracted considerable attention and showed the extent to which the manufacturers are interested in all forms of farm work.

Handbook for Truck Salesmen

Charles E. Stone, an engineer of Detroit, Mich., is issuing a motor truck hand-book for salesmen, which sells for 25 cents. It is a small pamphlet-size booklet that can be carried in the pocket, and contains a geat deal of statistical information that is of service to salesmen, including such things as metric conversion tables, angles of incline, gradients in percentages and degrees, road resistance, capability of horses, weights of ale and beer, and other commodities that trucks often carry, such as building materials, coal, coke, cotton and other products.

Charges Against Pump Makers

WASHINGTON, May 24 — Eleven companies manufacturing and selling pumps and tanks for storing and handling gasoline and oil are charged with unfair trade competition by the Federal Trade Commission. Seven of the companies are also charged with discrimination in price in violation of the Clayton Act.

The concerns named are: Wayne Oil Tank & Pump Co., Ft. Wayne, Ind.; Gilbert & Barker Mfg. Co., Springfield, Mass.; Atlantic Refining Co. of Philadelphia; Standard Oil Co., Ohio; Standard Oil Co. of Indiana; Standard Oil Co. of New York; Standard Oil Co. of Louisiana; American Tank & Pump Co., Cincinnati; Milwaukee Tank Co., Milwaukee; Tokheim Mfg. Co., Cedar Rapids; The Guarantee Liquid Measure Co., Pittsburgh, Pa.

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This is part of the parade. It also shows how cars that were not in the parade were placarded for the day. The W. S. S. Bank, around which activity centers, is shown at the center It stands at the city's busiest corner

It Takes the "Wild West" to Sell War Stamps

Oklahoma City Thought the Old Days Had Come Back When the Automobile Men Held a W. S. S. Day

OKLAHOMA CITY, May 27—To the motor car dealers of Oklahoma City belongs the credit for having sold more War Savings Stamps in one day than any of the many other clubs and organizations of this city.

Dick Carhart, county chairman for the War Savings Stamp Committee, struck upon the idea of a friendly contest between the various clubs of the city. On the first day the bank was turned over to the Knights of Pythias, who sold $2,203 worth of stamps. On the next day the Advertising Club sold $2,466 worth; on the third day the Shriners sold $2,591 worth; on the next day the Lions Club sold $5,243 worth; on the next day the Rotary Club sold $7,613 worth. The motor car dealers on the next day sold $22,455 worth and, on the last day of the week's contest, the Kiwanis Club sold $11,000 worth.

This contest was staged during the week ending May 11. If there is an automobile in Oklahoma City that does not bear a "Stamp out the Hun" sticker it probably is because the car did not leave the garage Friday, May 10.

The car dealers worked under the direction of the Oklahoma City Motor Car Dealers Association and before the day ended the town knew Carhart and the rest of his Indians had been on the job. They tagged every car, and a thrift stamp and sometimes a flock of them went with each sticker.

Hundreds of people who possibly never heard of thrift stamps until that day now have a nucleus for a collection as a result of the unique methods used by the car dealers.

Ropes were stretched across Broadway and Main Streets, traffic cops were pushed aside and a "Strong Arm" squad refused to allow cars to pass that did not bear a sticker in token of a thrift stamp sold.

The workers began with a supply of 5000 stickers. When these gave out 2000 more were printed and when evening came the supply was again exhausted. At least one thrift stamp went with every sticker.

Fifty Boy Scouts, fifty girls from the business college and fifty dealers composing a "Strong Arm" squad broke all records for the War Savings Stamps and resulted in more sales than any daily drive by the other organizations.

They began work at seven o'clock in the morning and did not stop until eleven o'clock that night. It was estimated that the girls sold $4,000 in stamps. Most of the girls carried service flags, one having a flag containing three stars.

Novel methods were used in stopping motorists who tried to plow through them without buying stamps. Three or four men would jump on the running board of the car and if the driver would not stop one of them would pull out the key or turn off the gas. When other methods failed, a small board was placed under the rear wheel which pulled the wheel from the ground and stopped further progress. Frequent complaints were made to the police by those who were stopped, but officers said they were helpless and told the complainers to buy stamps and be cheerful about it.

Exhibition of "The man who was killed



These are some of the wild and woolly automobile men in front of the W. S. S. Bank looking for customers. What chance would a man have against such a bunch of husky salesmen as these?

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because he would not buy a thrift stamp" netted nearly $1,000 in stamp sales. R. H. Walker, Glen Price and W. L. Freeman devised this scheme. Dale Allen, one of Walker's mechanics "played dead," took his place in a coffin, and was hauled through the streets. He was viewed by hundreds who bought a thrift stamp for a look at him.

The day's work was topped off with an auction at the War Savings Bank that night of articles confiscated during the day. Cigars, candy, pies and dogs were sold. Several articles taken from obdurate automobile owners who refused to buy stamps were placed in the War Savings Bank until they were redeemed by the owners buying stamps. These articles included ten gallons of buttermilk, two girls' hats, a window sash weight, two dozen bottles of mustard and a pet dog.

All during the day the motorists in trucks which were decorated with flags and banners paraded up and down the main streets.

Expand Airplane Mail

WASHINGTON, May 27—The Postoffice Department has planned extensions of the airplane mail service. Mail-carrying airplanes will operate between New York and Boston next fall. A third route will later be established between Chicago and St. Louis. The planes have already been purchased for the New York-Boston route. Weather conditions in New England are being studied. Schedules will be operated between New York and Boston in conjunction with the Washington-New York route and will effect a saving of 4 hours in mail delivery as compared with railroads.

Owing to the unfavorable weather conditions, which have delayed airplane mail service, the machines will be equipped with instruments for calculating wind, velocity, driftage, etc. Landing fields will be sprinkled over the entire routes so that fliers can sail along close to the ground if necessary.

Postoffice officials are confident that the aerial service will be self-sustaining. Under the present arrangement the War Department furnishes the fliers and machines and pays the cost of upkeep. The Postoffice suplies the landing fields and gasoline. To date an average of 600 letters have been carried northbound between Washington and New York, bringing in $150 a day. The southbound receipts are slightly less.

Rickenbacker Made Life Member of A. A. A.

ATLANTIC CITY, May 24—Eddie Rickenbacker, the racing driver, was honored to-day at the annual meeting of the A. A. A. when he was elected a life member because of the excellent patriotic and war spirit he has shown by first going to France and serving as a driver for General Pershing and then taking the aviation course, which has brought him so successfully up to the present with two, or perhaps three, German planes to his credit. Not only was a cable sent to Rickenbacker to-day advising him of the honor, but the signatures of all delegates attending the convention were sent to him.

Urge Better Highways For Motor Truck Use

American Automobile Association Adopts Resolutions Suggesting Road Improvement

ATLANTIC CITY, May 24—The attitude of the American Automobile Association with regard to improving highways for increasing motor truck transportation was clarified at the annual meeting of the association here to-day, when a definite program for highway building and maintenance during the war was adopted. It embraced wider highways so as to accommodate the increasing motor truck transportation in addition to passenger car transportation. It called for heavier bridges, heavier road foundations and sign-boarding of commercial roads for truck traffic.

The resolutions with regard to roads which were adopted are as follows:

1. Because highways are an essential part of our transportation system the War Industries Board should be urged to place road building material and road building machinery on the priorities list.

2. That the several committees of the War Industries Board having jurisdiction over the issue of new securities and approval of bond issues for improving main highways approve without delay all of such matters.

3. That as properly constructed and maintained highways are vital to our national needs that the following road building is deemed best.

a—Roads and bridges should be so built and maintained that they will withstand the constantly increasing heavy motor truck traffic.

b—Roads and bridges should be built wider than they have been in the past so that they can accommodate both the slow-moving freight traffic and the faster-moving passenger traffic.

c—Moneys received under the Federal Aid Road Act, as well as moneys received from state and rural sources, should be first applied to connecting the larger centers of population by main truck highways.

d—These main trunk highways should be continued to state boundary lines so as to link up with adjoining states for interstate traffic.

e—The policy of snow removal should be encouraged.

f—The greater share of the nation's transportation being placed upon the highways calls for greater federal, states and county appropriations.

4. Intercity highways for commercial traffic should be well sign boarded.

5. The patrol system of road maintenance be universally adopted.

6. Because of the shortage of motor mechanics the motoring public drive its own cars as much as possible. The motor clubs should take up the work of training motor mechanics.

7. All motorists should give soldiers and sailors a lift wherever possible.

Milwaukee After Rumor Mongers

MILWAUKEE, May 27—The circulation of an unfounded and baseless report in Milwaukee that the Government has ordered twenty "motorless Sundays," beginning June 2, to effect a conservation of fuel, has led the Milwaukee Automobile Dealers' Association to take under consideration the proposition of offering a reward of $1000 for information that will lead to the arrest and conviction of distributers of propaganda regarding the shortage of gasoline and the possible prohibition of the use of motor cars because of such shortage. The report was that on the twenty Sundays no passenger car could be used excepting strictly on business, such as those of physicians.

Submit Lens for Test

ALBANY, N. Y., May 27—A dozen or more manufacturers of headlight devices have submitted their product to Secretary of State Hugo as the first step in compliance with the new headlight law of New York State. Several manufacturers have submitted blue prints or drawings of their devices for testing, which Secretary Hugo has returned with a statement that a sample of the device must be sent for examination by experts of the National Bureau of Standards. Following a report of the tests a list of manufacturers complying with the law will be made public.

Nantucket Lets Down the Bars

BOSTON, May 25—After 12 years of agitation, court cases and verbal clashes motor cars are allowed to travel on Nantucket Island, the sole place in New England where they were excluded. A vote was taken on the measure the other day with the result that those favoring the cars won, the figures being 336 for and 296 against.

Allies Get Gas for 21 Cents

WASHINGTON, May 25—The price of gasoline to the Allies was fixed yesterday by the Fuel Administration as follows: Fo.b. Gulf ports, 21 cents per gallon; f.o.b. Atlantic seaboard, 23½ cents per gallon. United States Navy specification apply in both instances.

FLAG DAY

June 14 will be Flag Day all over the United States.

Watch

Next week for a program that you can use in your place of business.

Observe Flag Day

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No Motorless Sundays, Says Federal Officer

And Reward of $1000 Is Offered for Man Who Spreads "Fuel Shortage" Propaganda

ST. LOUIS, May 26—Assistant Secretary Holke of the N. A. D. A. has been busy the past week answering questions of dealers and automobile clubs as to the "seven motorless Sundays" beginning June 1. He has replied to all inquiries that there is no official backing for such a plan. The association received the following information from Washington:

"Restrictions on the consumption of gasoline by the general public are not yet considered necessary by the Fuel Administration. H. L. Requa, oil administrator, says the situation is being studied with a view of future action but until the Government requirements of gas for aviation and military transport expand materially, no regulations will be enforced to obstruct ordinary use. The Administration does not believe that the situation will be changed within the next few months."

The Milwaukee Automobile Dealers' Association has notified the N. A. D. A. that it has offered $1,000 reward for the arrest and conviction of persons who are disseminating the information as to the restrictions on the use of gasoline.

N. A. D. A. Indorses Theft Law

ST. LOUIS, May 28—The directors of the N. A. D. A. in the meeting here a week ago indorsed the anti-theft law drafted by J. T. Botkin, secretary of State of Kansas, acting as a committee for the American Association of Secretaries of State. The National pledged its support in endeavors to get this bill passed by the various states.

This law requires that whenever a motor vehicle is sold the sale shall not be legal until the seller transfers a certificate of title and license, issued by a secretary of state. Also it makes the requirements for licensing all cars the same in all states except as to fee.

The N. A. D. A. Directors also indorsed several proposed bills to protect cars in driveaways.

N. A. D. A. Adds to Membership

ST. LOUIS, May 26—Recent reports to the N. A. D. A. headquarters here bring into the National the following local dealer associations with full membership: Toledo, Seattle, Cincinnati, Indianapolis, Memphis, St. Paul and Sioux Falls.

Detroit S. A. E. Nominating Committee Elected

DETROIT, May 25—At a meeting of the Detroit Section of the Society of Automotive Engineers held last night, J. Edward Schipper, Technical Editor of Class Journal Co., was elected chairman; A. C. Hamilton, Chief Engineer of the Oakland Motor Car Co., vice-chairman; Chas. Van Sicklen of the Van Sicklen Speedometer Co., secretary; Don T. Hastings, Chief Engineer of the Holly Carburetor Co., treasurer, and R. E. Wells, Engineer Hyatt Roller Bearing Co., member of the national nominating committee to nominate officers for the national association at the coming summer meeting in Dayton. The membership of the Detroit Section is now 1200 and although a number of the members have been absent from the city due to connections with the government at Washington and other points, the meetings have been well attended. At the meeting held last night, Lee Anderson, vice-president of the Hupp Motor Car Corp., delivered an address on the problems of the sales and engineering departments during the war, and afterwards.

Dodge District Managers Meet

DETROIT, May 25—The annual convention of the district managers of Dodge Brothers was held in Detroit this week. Good reports issued from these managers indicating a good business in every section of the country.

Sixteen Entries For Sheepshead

NEW YORK, May 27—The card for the Decoration Day meet at Sheepshead Bay Speedway has not yet been definitely settled though it is certain that there will be two events and perhaps more. The principal feature will be the 100-mile Harkness Trophy Handicap for which 16 entries already have been made. The other event will be a 10-mile handicap which is to be run in two heats and a final. Entries formally close at noon, May 28. Both races are for nonstock cars of 300 cu. in. piston displacement or less. The entries to date are:

Driver	Car	Handicap
Louis Chevrolet	Frontenac	Scratch
Ralph De Palma	Packard	1:01
Dario Resta	Resta Special	2:02
Ralph Mulford	Frontenac	2:05
Barney Oldfield	Golden Submarine	2:10
Ed. Hearne	Duesenberg	2:12
Tom Milton	Duesenberg	2:15
Ira Vail	Hudson	2:21
Omar Toft	Miller special	2:35
———	Delage	2:50
———	Delage	3:00
Denny Hickey	Hotchkiss	3:10
I. P. Fetterman	Peerless	4:00
Percy Ford	———	5:00
Rudolph Wehr	Wehr special	6:00
Wm. Votere	Duesenberg	6:00

The car which Resta will drive is a combination of the Peugeot chassis which he has previously driven fitted with an engine which he is understood to have built himself. For the 10-mile handicap De Palma and Resta will be on scratch.

The Lenses That Worked and the Laws That Failed

Did You Read the Story on Pages 6, 7 and 8?

It Should Interest You

Accessory Show Hit by Chicago Dealers

Declare That Any Member Taking Part in It May Be Expelled from the Association

CHICAGO, May 24—The Automotive and Accessories Exhibition, which is planned for the Municipal Pier in September, is not to have clear sailing, as seemed would be its lot a few weeks ago. While it has received the endorsement of the Chicago Association of Commerce, the Chicago Automobile Trade Association appears to have come out strongly against it. In a letter sent out to its membership the latter organization makes the statement that unsanctioned motor vehicle and accessory shows are being promoted in Chicago and that any member who takes part directly or indirectly in such an exhibition will be liable to expulsion. At the headquarters of the association, it is stated that it was the Automotive and Accessories Exhibition which called forth the letter.

Open Top Cars For Road Material

WASHINGTON, May 27—The Railroad War Board has ruled that open-top freight cars may be used for the transportation of sand, gravel and other road material, thus acting in line with the policy adopted by the United States Chamber of Commerce at its annual meeting in April.

The ruling, which has been prepared by the Car Service Section of the Railroad Board, provides that available open-top cars not suitable for the transportation of coal, coke or ore, may be furnished for the transportation of stone, sand and gravel and when so furnished shall be used preferentially for the transportation of highway maintenance material. It is further ruled that cars used for coal, coke and ore may be used for the transportation of road materials on their return trips to the mines, and that every endeavor should be made to furnish shippers of stone, sand and gravel with a minimum of 40 per cent of the minimum weekly transportation requirements.

Peerless Studies Drive-Aways

CLEVELAND, May 27—A combination of circumstances permits an economical handling of trucks and passenger cars for the Peerless Motor Car Co. even to far distant points.

This consists in the delivery of truck chassis and passenger cars in one trip. This has been accomplished during the severest weather at a good average express shipment time and at practically freight cost. Passenger cars are crated and secured to the truck chassis.

In delivering passenger cars overland where trucks are not included in the order, the finish is preserved by a protective coating of oil which, when removed at the point of destination, leaves the finish as good as when the car left the factory.

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Farm Implements Don't Include Light Trucks

Food Conservation License Plan Not Intended to Apply to Any Such Vehicles

NEW YORK, May 25—President Wilson's proclamation requiring that manufacturers, dealers and jobbers of farm implements and equipment obtain licenses will not apply to manufacturers, dealers and jobbers of motor trucks. The National Automobile Chamber of Commerce has issued a statement to the effect that Washington officials state that the word "trucks" in the proclamation is intended to relate only to small trucks used on farms, "and will not affect motor truck manufacturers for the present, although later, in the case of companies which sell a major portion of their trucks to farmers, a ruling might be made requiring such companies to take licenses."

It was the intent of the proclamation to eliminate profiteering in the handling of food supplies and to prevent injurious speculation and manipulation in the manufacture, sale and distribution of farm equipment used in the production of food. The proclamation specifically includes tractors, trailers and trucks.

Does Not Include Retailers

Retailers of farm equipment, including trucks, trailers and tractors, will not be required to obtain licenses under the recent presidential proclamation. Retailers are defined as "a person, copartnership, firm, corporation or association not doing wholesale business, and with gross sales not exceeding $100,000 per annum."

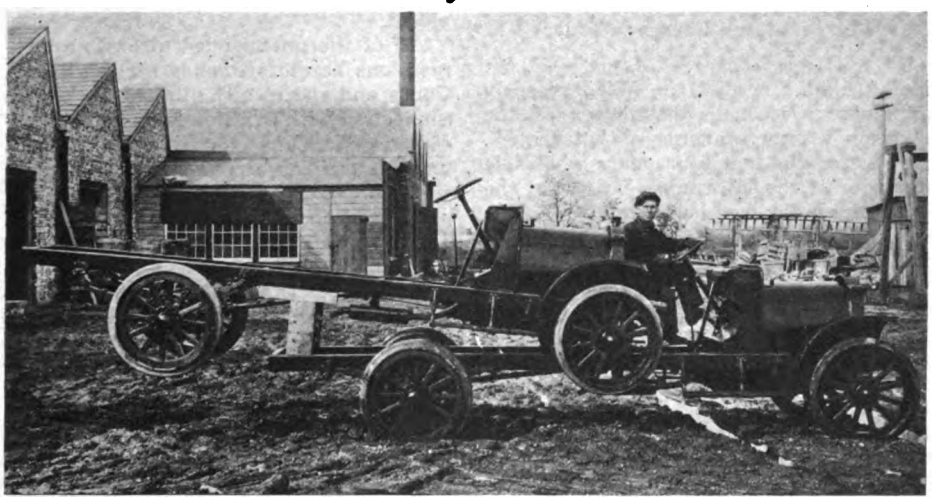
However, under provisions of the proclamation steps will be taken to prevent profiteering by retailers. They will not be allowed to make unjust charges, unreasonable rates or contract for more equipment than is demanded by the reasonable requirements of the business. Further explanations of this licensing order will be made public by the Food Administration in the near future.

Inch Size Tires for Export

NEW YORK, May 27—Commencing July 1, 1918, manufacturers of passenger automobiles will use inch sizes in equipping cars for export instead of the usual metric sizes. Following the promulgation of a list of standard sizes by the Commercial Economy Board of the Council of National Defense and its formal approval by the tire makers and the car producers, the tire makers met with the Export Committee of the National Automobile Chamber of Commerce last week and agreed to substitute the inch sizes for metric sizes.

The tire manufacturers have agreed to carry in stock in all countries sufficient stocks of tires to fill requirements. Car makers are to supply the tire people with estimates of the number of cars likely to be exported to the various countries during the year beginning July 1. The tire makers in turn will prepare lists of foreign branches and dealers where stocks of standard size tires will be maintained.

It Takes One Fulton to Carry Another



TRANSPORTATION difficulties have brought into existence many ingenious devices for transporting cars and trucks these days. An interesting method is employed by the Fulton Motor Truck Co., Farmingdale, L. I., in which one chassis is mounted on the other, blocked in such a way that the carried chassis will not move about or fall off. The front end of the carried chassis is laid on a board which is made fast to the frame of the lower chassis, while two braces with cross pieces supporting them are placed on the rear of the lower chassis from which point they support the central part of the frame of the carried chassis. It is stated that the trucks have ridden very satisfactorily, arranged in this manner and deliveries have been made to points 400 miles distant and less without damage. Greater distances are to be covered in the immediate future.

Los Angeles Dealers Make Greer President

Stoner Heads Motor Truck Division —Much Good Work Done by Association

LOS ANGELES, May 27—In recognition of the activity he has shown for many years in the welfare of the organization Perry H. Greer was chosen president of the Los Angeles Motor Car Dealers' Association at a recent meeting. Ralph C. Hamlin was continued as treasurer. For the first time the motor truck branch of the trade was recognized by the election of J. A. Stoner to the office of vice-president. L. V. Starr was named secretary, and in addition to these four the board of directors will be composed of Donald Smith, H. W. Tuttle and Spencer Kennelly, the last named representing the authorized Ford dealers of the city.

There are 72 dealer-members and practically every one belongs to the National Automobile Dealers' Association, Greer, the new president, being a vice-president of that body. Recognizing legislation is important and always has two sides, the local association has retained Dave Smith, an attorney, as legal adviser and assistant secretary upon a salary.

Harold L. Arnold, retiring president, made a report, in which he called attention to the accomplishments of the dealers during the last year. He called attention to the growth of the association in two years from a membership of 16 to 74 and from a condition of finances which necessitated the levying of a $25 assessment to pay the more pressing debts in 1915 to workable assets of $4,000 cash in bank and an investment of $10,000 in Liberty bonds of the third loan. Its stable financial condition has resulted from the association conducting and managing the two last motor vehicle shows held, committee members donating their time and energies, making unnecessary the employment of a professional promoter.

At the last session of the California legislature the association succeeded in blocking the enactment of an extremely drastic garage lien law and in its place had substituted a bill that goes a long way toward protecting the dealer who sells a car under lease contract by making it a felony for the purchaser to attempt to dispose of a car bought in this way before it is fully paid for.

St. Louis Produces 70 Fords a Day

ST. LOUIS, May 26—The Ford assembly plant here has been turning out 70 cars a day for some time, according to W. C. Anderson, manager. Each of these cars leaves the plant under its own power, as rail shipments are not considered. The home trip in this territory is as far as 300 miles.

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Motor Truck Exchange Plan for Philadelphia

Cut Out Dead Mileage and Increase Efficiency—Propose Highway System

PHILADELPHIA, May 27—To increase the efficiency of operators engaged in long distance motor truck transportation, the Board of Trade, through its committee on inland transportation, is seeking to form a motor truck exchange in this city. It is planned to consolidate and stabilize the operation of motor trucks through organization, which would guarantee the responsibility of all members in such a body. Long distance trucking concerns are springing into being in Philadelphia almost weekly. Motor truck men have expressed the view that thoroughly competent operators are a necessity, especially now that the United States government is making a survey with a view of establishing a federal department of highways, that, under a chief like Mr. McAdoo, would have jurisdiction over the building and control of roads.

Tentative plans of a proposed system of motor truck highways in southeastern Pennsylvania have been submitted to Joseph W. Hunter, acting State highway commissioner. The project was indorsed recently by the city comprehensive plans committee and financial aid from the State will be required to put it into effect. The highways are planned so as to connect industrial centers within a radius of 60 miles of Philadelphia, obviating the necessity of having much of this traffic pass through the city.

Horning Resigns from Automotive Products Section

WASHINGTON, D. C., May 27—H. L. Horning, director of the Automotive Products Section of the War Industries Board, Council of National Defense, has resigned. His resignation has been accepted for the War Industries Board by George M. Peek, Director of Finished Products. Mr. Horning is secretary of the Waukesha Motor Co., Waukesha, Wis., which has increased its business from $375,000 in 1914 to $7,500,000 in 1918, and this has caused imperative need for his services at home. He has been urged for some time to resign and give his entire time to his personal business affairs.

Mr. Horning came to Washington in May, 1917, as a member of the Production Automobile Committee of the Council. He has been actively interested in the design and production of standardized war trucks against which serious opposition developed through objection to this program on the part of certain interests.

In July, 1917, he was made chairman of the Automotive Committee, and has held that position ever since. His duties have been the final supervision of purchases by the Allies and the United States Government of all automotive products, including passenger cars, motorcycles, motorcycle side-cars, motor ambulances, trucks, truck bodies, truck trailers, armored cars, military tractors, military tanks, airplane engines, gas engines, stationary gas engines and automotive accessories.

It is reported that Mr. Horning is working on a new discovery to aid in winning the war, and that much of his time will be given to that work in the Waukesha laboratories.

Ohio Has 2000 Tractors

COLUMBUS, OHIO, May 27—Ohio's tractor drive to increase food production is succeeding beyond expectation. There are now at least 2000 tractors in use in the state. The original goal was 1500. According to L. H. Lightcap, chairman of the farm production committee of tractor manufacturers organized to boost the movement, at the suggestion of Governor Cox and the state defense council, tractor sales have increased 30 per cent in Ohio this year.

Manufacturers have co-operated by arranging special terms to Ohio farmers, by setting aside definite parts of their output for this state and by securing the widest possible distribution, endeavoring to place their sales throughout the state in every possible county in which the use of a tractor is practicable.

The second lap of the tractor drive is now on. It is an attempt by companies to train farm owners to get maximum efficiency out of their machines in every district where tractors have been sold.

The state has rendered great assistance in making it possible for farmers to buy the machines. By direction of the governor, State Bank Superintendent Berg has asked all state banks to aid farmers in financing tractor purchases.

Big Plant for Fordson Dealer

FON DU LAC, WIS., May 27—T. W. Meiklejohn, Fon du Lac, Wis., recently appointed Wisconsin distributer of the Fordson tractor, announces that Ira W. Mabie, for the last four years wholesale manager of the Milwaukee branch of the Ford Motor Co., has been appointed manager of the distribution headquarters of the new tractor at Fon du Lac. A large warehouse will be erected at once at Main Street and the Chicago & North-Western tracks, on a site, 500 x 800 ft., provided by the railroad. Meiklejohn has resigned as president and manager of the Service Motor Co., Fon du Lac, district Ford distributer, to devote his entire time to the Fordson tractor work in Wisconsin. He is succeeded by W. A. Meiklejohn. The Service company will act as official service station on the Fordson tractor in central Wisconsin.

Frank Hopewell

Frank Hopewell, head of the firm of L. C. Chase & Co., Boston, died April 25, 1918, after a short illness at Pasadena, Cal., where he was spending a few weeks with his wife and daughter.

President Reorganizes All Aircraft Activities

Signal Corps Completely Divorced and Various Heads Are Given Real Power

WASHINGTON, May 23—As soon as President Wilson signed the Overman Bill on May 20, it was possible for him to proceed with the reorganization of the aircraft activities, and this has been carried out in accordance with plans announced some weeks ago.

The main thought in the reorganization is that those in charge are given power as compared with Howard E. Coffin, former chairman, who had an advisory position only. Under the reorganization, the Signal Corps has been robbed of every vestige of power relating to aviation and aircraft matters. Major-General Geo. O. Squier, who as Chief Signal Officer of the army was the head of aviation activities, has now nothing whatever to do with the work.

In the reorganization there are two divisions of aircraft activity: The Bureau of Aircraft Production, which is headed by John D. Ryan, the copper operator, and who is the successor to Howard E. Coffin. The other department is the Bureau of Military Aeronautics, which has to do with the complete training of men for the service and is under Brig.-Gen. William L. Kenly. His duties include the operation and also the maintenance of military aircraft.

Ryan, as head of the Bureau of Production, has complete jurisdiction over the production of airplanes, airplane engines, and all equipment necessary. By this division of the field, Chairman Ryan has charge of manufacturing and Gen. Kenly takes charge after they are completed.

All of the unexpended aircraft appropriations heretofore made for the Signal Corps and specifically allotted for use in connection with aviation have been transferred. The funds for the operation and maintenance of airplanes go under the jurisdiction of Gen. Kenly and those for production come under the control of John D. Ryan.

It is quite likely that in addition to these two aircraft divisions, the one controlling production, the other controlling operation and maintenance, there will in the near future be established the third joint division comprising the best engineers in both sections for the purpose of securing the most competent designing and engineering advices.

The completion of the one thousandth Liberty aviation engine on May 17 comes as good evidence of what had previously been accomplished under the poorly organized Aircraft Production Board and this production figure adds much credit to those who have had the work in charge.

At this writing, Packard and the Lincoln Motors are in production. Cadillac and Buick are practically getting into production. Marmon has been com-

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pleting the final test of this engine before starting in production. The exact status of the Ford factory is not known, but it is reported that Henry Ford has organized a force of 1200 toolmakers in order to hasten production.

Not only is the former Aircraft Production Board deserving of credit for the actual production of Liberty engines, but the work of the Board is well evidenced by plane production. The Dayton-Wright Airplane Co. had shipped a few days ago 104 complete De Haviland battleplanes fitted with Liberty engines. These planes carry a pilot and gunner. They are fitted with two machine guns. For these 104 planes shipped, there are spares for seventy-one additional so that the shipment of 104 battleplanes is equivalent to 175.

This factory is by far the farthest advanced in plane production, but its production has been held up for months because of delays on the equipment for the planes which had to come through the Signal Corps and over which the factory had no control. It has been held up for months waiting for machine-gun mountings. Last week it was held up because the Signal Corps had failed to order certain types of radiators that were supposed to have been ordered. These planes are now being shipped without air-speed indicators or bombing attachments. There has been very much delay in connection with the development of the many equipments which go with the planes.

This factory last week produced forty-five of these De Haviland battleplanes which with the necessary spares equalled an output of 75 complete planes. The week previous, production was thirty-two planes, to which must be added spares; and the week previous to that twenty-seven, which with spares would make fifty-four. The production to-day is approximately twelve planes per day which with spares is equal to twenty planes.

Changes in Price

NEW YORK, May 27—The following changes in price have been made during the past week:

	New Price	Old Price
Mercer, Series 4, 4-and 6-pass.	$3850	$3500
Mitchell, D-40, 2-pass*	1350	1250
5-pass.	1350	1250
Coupe	1900	1850
Sedan	2000	1950
C-42, 3-pass.	1565	1490
5-pass.	1625	1560
7-pass.	1625	1525
Coupe	2210	2135
Sedan	2375	2275
Roamer, C-6-54, 4-pass.	2375	2250

*Effective June 1.

Signs for Curtis Compressor Owners

ST. LOUIS, May 27—The Curtis Pneumatic Machinery Co. is furnishing a 10 x 14-in. steel baked color sign with every Curtis air compressor. A similar sign will also be sent to all owners of the compressor.

Philadelphia Supply Men Add 12 Members

Automobile Accessories Business Association Growing—Plan Annual Outing

PHILADELPHIA, May 24—Twelve new members were admitted to the Automobile Accessories Business Association at its monthly meeting and it was decided to hold the yearly outing on June 15, at Kugler's on the Delaware River, jointly with the Motor Truck Association and the Camden Automobile Trade Association. Sixty members attended the meeting.

Samples of the new association stamp, or "sticker" issued in the city colors, blue and yellow, for use on all stationery of the members and the association, for patriotic purposes, were exhibited.

On a call for volunteers for the War Chest drive, the following responded and formed themselves into teams to collect the subscriptions for the accessory men: Malcolm Robertson, S. D. Winchell, V. S. Fry, Walter Bisworth, Frank Ash, Jr., James J. Bradburn, Charles G. Frowert, D. D. F. Yard, William E. Hoover and Albert Stellwag.

The principal speakers at the meeting were: Lee J. Eastman, Capt. C. Ross, of the First Canadian Battalion; Mayor Schimpf of Ventnor, N. J.; William B. Levis, whose brief war talk raised a collection of $131 on the spot, and Walter Willard, president of the City Club. The meeting had a decided war-and-patriotism flavor throughout the session, business topics being subordinated.

THE WILL-O'-THE-WISP

(*Continued from page* 15)

Discounts used to be long—and the dealers gave them away. So the manufacturers cut the discounts.

"With accessories its different. On those you don't get exclusive distribution and the overhead is higher. Discounts have to be bigger.

"Car discounts have been shaved and shaved until some of them are pretty short—but you'll find the popular cars with the shorter discounts are the ones with the most prosperous dealers. If their discounts were stretched a little it would make the dealers still more prosperous, for most of them have been squeezed into learning good business methods.

"If I take on your long-discount truck some day I'll lose the long discount. It is not something I can bank on in the future. As competition becomes keener you'll have to come down in price—and your cut will come largely out of the discount. If you had a proposition anywhere nearly equal to the Sayanna I'd grab it. But you haven't. If I couldn't get the Sayanna or one like it I'd take yours. But as long as I've got the Sayanna and am making money at it I'm not going to go chasing any long discount will-o'-the-wisp that will lead me no one knows where. I'm on my way and I know where I'm going."

"And so do I," said the Highman man, as he donned his gay new straw lid and steered his way toward the next best prospective dealer in Callawassa.

Truck Freight Line for Des Moines

DES MOINES, May 27—Iowa's first motor truck transportation company has been formed. Council Bluffs citizens have filed articles of incorporation for the Cross Country Transportation Co., with a capital stock of $25,000. T. A. Minardi is president of the company. Regular routes are now being planned and motor trains will operate on regular schedules. Freight will be received and discharged at all stations.

Order 8000 Standardized Trucks

WASHINGTON, May 25.—Orders for 8000 Class B 3-ton standardized motor trucks have been placed by the Motor Transport Service. They will be distributed through the various branches of the army as required. Each company awarded a contract will do assembly work, the parts having been ordered from other concerns, and will receive an assembly price of $567 per truck. Deliveries are to be completed between Aug. 1 and Dec. 1. Sixteen companies are expected to share the order, of which 15 have already signed contracts. They are:

Gramm-Bernstein Motor Truck Co....Lima
Kelly-Springfield Motor Truck Co..Springfield
Indiana Truck Corp.....Marion, Ind.
Service Motor Truck Co.....Wabash, Ind.
Republic Motor Truck Co.....Alma, Mich.
Selden Truck Corp.....Rochester
Bethlehem Motor Corp.....Allentown, Pa.
Diamond-T Motor Co.....Chicago
United States Motor Truck Co....Cincinnati
Brockway Motor Truck Co.....Cortland
Healy Motor Corp.....Moline
Sterling Motor Truck Co.....Milwaukee
Garford Motor Truck Co.....Lima
Packard Motor Truck Co.....Detroit
Hulburt Motor Truck Co.....New York

Ten thousand of the Class B trucks have already been ordered, of which more than 2500 have been delivered and 75 are being produced daily. The assembly price of $567 per truck is approximately $200 lower than the assembly price of between $700 and $800 which was reported for the first contract of 10,000 trucks.

Bankers Help Tractor Sales

KANSAS CITY, May 27—Bankers of Kansas City territory are far readier this summer than last to finance farmers who wish to buy tractors. Heretofore the farmer's credit in tractor purchase has been based entirely on the farmer's character, the bankers considering that they were taking a chance. Many bankers this spring are actually encouraging farmers to buy tractors, so production can be fairly well guaranteed on the farmer's investment. Bankers in districts where average farms are a quarter section welcome the two- and three-plow tractors for such farms.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Leopold E. Mosiman has been appointed production manager of the Traffic Motor Corp., St. Louis. He was formerly superintendent of the Chevrolet branch plant in St. Louis.

A. C. Burch has resigned as president of the Signal Motor Truck Co. and has been elected vice-president in charge of sales and director of the Clyde Cars Corp., Clyde, Ohio.

C. A. Erickson, formerly chief engineer of the Scripps-Booth Corp., Detroit, has been made general manager of the Standard Radiator Co., Springville, N. Y.

J. D. Wilson has been appointed chief engineer of the carriage division of the Packard Motor Car Co., Detroit, succeeding G. H. Brodie, who was recently transferred to the aircraft engineering staff. Formerly Mr. Wilson was assistant carriage chassis engineer.

T. P. Chase, formerly chief engineer of the King Motor Car Co., Detroit, has been made chief engineer of the Young High Velocity Carbureter Co., Detroit. His work will have to do with the technical details involved in the manufacturing of the Young carbureter.

J. W. Fitzgerald, former president of the Detroit Starter Co., who later became president of the Versal Products Co., Detroit, has been appointed consulting and experimental engineer for the L. A. Young Industries, Inc., Detroit.

C. V. Thomas has been promoted from assistant sales manager of the F. B. Stearns Co., Cleveland, to general sales manager of the company.

C. C. Thomas has been appointed sales engineer of the Denby Motor Truck Co., Detroit, with which he has been associated for the past 3 years, first as experimental engineer then as service manager.

W. A. Clare, general sales manager of the Atterbury Motor Car Co., Buffalo, N. Y., for the last 2 years, has been appointed assistant secretary of the company. He will retain his supervision over sales in addition to his new duties.

Fred J. Miner has been appointed district representative of the Duplex Truck Co., Lansing. His territory consists of southeastern states. He was formerly connected with the Olds Motor Works, Lansing, and the Cadillac Motor Car Co., Detroit.

Frank B. Kearn, who for 6 years held different positions with the Willys-Overland Co., Toledo, for some time acting as Australian representative, has been appointed office manager of the General Motors Export Co., New York.

Louis W. Cossey, formerly of the Albany branch office of the International Motor Co., has accepted a position with the Lane Motor Truck Co., Kalamazoo, Mich., as sales representative for New York State and western Massachusetts.

Frederick H. Chrisler, for the past 2 years with the Saxon Distributing Co., Albany, has accepted a position as sales manager for Chalmers cars with the Berkshire Motor Co., Albany.

Harry W. Graves has just been appointed sales and advertising manager of the Stanley Motor Carriage Co., Newton, Mass.

Charles H. Goss, formerly assistant to the general manager of the Bergougnan Tire Co., New York City, has entered the army and is at Camp Joseph E. Johnston, Jacksonville, Fla.

Norman G. Wilson, who associated himself with the Philadelphia Stanley branch last February, has been promoted to the position of manager of the branch.



HOWARD NATTRASS

Of the Nattrass & Harris Motor Co., Ltd., Wellington, New Zealand, who drove 40 Oaklands from Pontiac to New York in order to "make" a boat that was about to sail, the first ship for New Zealand in three months

E. J. McMullen, formerly in the technical department of the Olds Motor Works, has been appointed First Lieutenant in the Quartermaster Corps of National Army and has been ordered to report for duty at once. He was chassis lecturer for the Olds during show seasons and has given technical lectures from coast to coast.

D. C. MacDonald, formerly manager of the Akron Branch of the Mason Tire & Rubber Co., has joined the colors and is at Camp Meade, Md.

William King, who has been sales manager for the Brandle Motors Co., St. Louis, for a year, has returned to the service of the Missouri State Life Insurance Co., which has created a special department for him.

A. D. Beach, formerly manager of the Hood Rubber & Tire Co., St. Louis, has been made territorial representative of the Cadillac Automobile Co., St. Louis.

Large Rubber Stock On Hand at Present

According to Rubber Association, Tire Makers Have Plenty For a Time

NEW YORK, May 27—Assurances that there is sufficient rubber on hand and in transit to care for normal requirements for some time into the future were given at a luncheon held by the Rubber Assn. of America for the War Service Committee of the Rubber Industry of the U. S. A. on May 10, the details of which have just been made public. On March 31 there was a total of 87,572 tons in the hands of importers and manufacturers and afloat. On Dec. 31, 1917, the total tonnage afloat and in stock amounted to 67,536 tons, so that stores increased 20,000 tons in the 3-month period. Following are the statistics:

	Tons
Crude rubber in importers' stores	11,224
On docks and in transit overland	20,754
Afloat for American ports	14,832
Crude rubber in manufacturers' stock	18,512
In transit within the U. S.	15,033
In transit, imported direct	7,215
Total	87,572

All of this is what is termed "free rubber," that is, it is not subject to the restrictive measures under which the importation of crude is limited to 25,000 tons during the current 3-month period. Only rubber which was shipped subsequent to May 8 is covered by this measure.

Correction

BLOOMFIELD, N. J., May 27—Joseph P. Hall, general manager of the Combination Rubber Mfg. Co., was formerly treasurer-director of the Globe Rubber Tire Mfg. Co., and not of the Combination company as stated in a recent issue of Motor World.

Motor Car Securities Quotations

	Bid	Asked
*Ajax Rubber Co.	58	60
*J. I. Case T. M. Co., pfd.	85	89
Chalmers Motor Co., com.	6	8
Chalmers Motor Co., pfd.	30	40
*Chandler Motor Co.	80	82½
Chevrolet Motor Co.	123	126
*Fisher Body Corp., com.	26	34
*Fisher Body Corp., pfd.	80	87
Fisk Rubber Co., com.	52	55
Fisk Rubber Co., 1st pfd.	98	103
Fisk Rubber Co., 2d pfd.	70	75
Firestone Tire & Rub. Co., com.	90	93
Firestone Tire & Rub. Co., pfd.	94	95
*General Motors Co., com.	123	125
*General Motors Co., pfd.	87	87½
*B. F. Goodrich Co., com.	43	45
*B. F. Goodrich Co., pfd.	99½	100
Goodyear Tire & Rub. Co., com.	141	144
Goodyear Tire & Rub. Co., pfd.	96	98
Grant Motor Car Corp.	2½	3½
Hupp Motor Car Corp., com.	2¾	3¼
Hupp Motor Car Corp., pfd.	80	83
International Motor Co., com.	22	26
International Motor Co., 1st pfd.	50	58
International Motor Co., 2d pfd.	33	37
*Kelly-Springfield Tire Co., com.	45	45½
*Kelly-Springf'd Tire Co., 1st pfd.	76	87
*Lee Rubber & Tire Corp.	16½	17½
*Maxwell Motor Co., Inc., com.	27½	28½
*Maxwell Motor Co., Inc., 1st pfd.	54	55
*Maxwell Motor Co., Inc., 2d pfd.	19¾	21
Miller Rubber Co., com.	100	103
Miller Rubber Co., pfd.	94	95
Packard Motor Car Co., com.	104	109
Packard Motor Car Co., pfd.	91	94
Paige-Detroit Motor Car Co.	16	18
Peerless Truck & Motor Corp.	14	17
Portage Rubber Co., com.	102	105
†Reo Motor Car Co.	14	15
*Saxon Motor Car Corp.	7	8
Standard Motor Construction Co.	11	13
*Stewart-Warner Speed. Corp.	56½	57½
*Studebarker Corp., com.	41	42
*Studebaker Corp., pfd.	75	96
Swinehart Tire & Rubber Co.	36	..
United Motors Corp.	24	25
*U. S. Rubber Co., com.	56½	57½
*U. S. Rubber Co., pfd.	103½	105½
*White Motor Co.	40	41½
*Willys-Overland Co., com.	19⅜	20
*Willys-Overland Co., pfd.	80	82
Standard Parts Co.	65	68

*At close May 25. Listed N. Y. Stock Exchange. †Par value $10.

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Best Repairmen Used for Training Soldiers

Special Education of Drafted Men Progressing Well—Outline of Course

WASHINGTON, May 27—Special education of drafted men by universities and colleges is working successfully. The Committee on Education and Special Training of the War Department in a report shows that the University of Pittsburgh is training 650 men for service as gas engine and automobile mechanics in the army. When this plan was announced in March the University of Pittsburgh discussed provisions of training and housing the 100 men. Less than a month later 326 men were taking instruction. To-day there are 650 men. It is anticipated that there will be 2000 by Aug. 1, and the university is preparing to enlarge its facilities even beyond that point.

The work at this particular university was confined to the training of gas engine and automobile men, first, because there were a number of members of the faculty who were specialists in gas engines; second, because there were in the city many automobile repairshops from which practical men could be taken to give instruction, and, third, because the city offered an opportunity for obtaining without transportation a large variety of worn and broken automobiles, an essential in conducting the practical course which was planned. Both the equipment of the university and its location made possible an effective co-ordination of instruction, material and housing necessary for the work.

The problem of instruction has been met by collecting about 45 of the best automobile repairmen in the city, who under the leadership and coaching of faculty members have proved successful teachers. They were men without academic experience, but with experience in the kind of concrete practical teaching demanded. It is continually impressed upon the instructors that the work they are doing is very important, that if only one-fourth of the men they train prove to be poor mechanics it is just as serious or probably more serious than if only one-fourth of the shells made in a munitions plant should fail to explode.

The material for use in the course comes from three sources: New Trucks and engines from the government, old and dilapidated cars which have been purchased outright by the university, and cars and trucks in need of repairs which are obtained from firms and individual owners. Owners of cars pay for new material, but no charge is made for labor. The owner is allowed to choose whether he will have his car put in "first class," "fair" or "running" condition with a corresponding range in the expense for new material. The university has provided shop equipment and individual tool kits for each student.

The university first met the housing problem by making use of the gymnasiums and other buildings which could be temporarily adapted for sleeping purposes and for the feeding of men. Barracks are now being built which by Aug. 1 will accommodate 2000 men. Shops have been built for 580 men. These are being extended. A mess hall seating 1200 will be completed by June 15.

The whole character of the instruction is practical. No more theory is given than is absolutely necessary.

It has been found possible to maintain the most intimate connection between the military and mechanical aspects of the work. According to their officers, the men learn the routine of drill nearly as fast as they would if they gave their whole time to it. Their excellent morale and fine spirit show alike in the energy with which they attack the problem of diagnosing the complaints of a broken down automobile and in the zest with which they go through the maneuvers of their military drill. The men are not allowed to feel that there is any distinction between their mechanical work and their military instruction. They are responsible to their captain for doing their duty in both.

Glover Heads Motor Transport

WASHINGTON, May 27—Major F. Glover, of the Ordnance Department, who has been in charge of tractor work, has been promoted to a Colonelcy in the Quartermaster Department, and appointed by Brig. Gen. Wood, acting Quartermaster General, as Chief of the Motor Transport Service. He will have supervision of the purchase and procurement of all motor propelled vehicles except tanks, creeper-type tractors and other artillery tractors for all of the various divisions of the United States Army in this country and abroad.

Detailed duties of Colonel Glover include technical supervision over maintainence and repair, organization, supply, operation and inspection of motor-driven vehicles, motor repairshops and garages, and a department for supplying spare parts, gasoline, lubricants and miscellaneous supplies. He will also confer with the Ordnance Department, which will have charge of purchases of tanks, creeper-type and artillery tractors, in regard to these vehicles.

Colonel Glover prior to entering the military service was the general manager of the Emerson-Brantingham Co., tractor manufacturer, Rockford, Ill.

New Mail Records with Liberty Engines

WASHINGTON, May 24—Liberty engine-equipped airplanes used yesterday for the first time in the mail air service established new flying records. Mail which left Washington at 11.30 a. m. arrived in New York at 2.10 p. m., bettering previous records by 40 min. The journey from New York to Philadelphia was accomplished in 52 min., bettering previous records by 23 min. The journey from Washington to Philadelphia was made in 1 hr. and 48 min.

Taking Snarls Out of Car Taxation Tangle

Branch and Dealer to Be on Same Footing—How Should Chassis Be Taxed?

NEW YORK, May 25—Automobile taxation matters, about which the National Automobile Chamber of Commerce conferred with treasury officials yesterday, are gradually clearing up, and though no definite ruling is expected for at least two weeks, the situation is promising.

Under the original ruling a manufacturer's branch was held to be separate, and as such was required to pay a tax of 3 per cent on the retail value of cars sold, whereas a manufacturer selling a car to a dealer who in turn sold it at retail was required to pay 3 per cent only on the price to the dealer. It is expected that this will be straightened out and that the manufacturer's branch selling at retail will be placed on the same footing as a dealer.

Another matter which was discussed was the tax on a tax. Under the original ruling a manufacturer who sold a car to a dealer at wholesale for $800, for example—the dealer's tax in this case being 3 per cent, or $24—was required to make a return to the government on both the price of the car to the dealer—$800—and the $24 tax. In other words, his return was on $824. It has been pointed out that this is manifestly unfair and the ruling probably will be changed.

Under the original ruling a manufacturer who sold a chassis direct to a user was required to pay a 3 per cent tax, whereas if he sold the chassis to a dealer the dealer was required to pay a 3 per cent tax on the chassis and also on the value of any body applied to it. It is considered likely that this ruling will be changed so that a manufacturer will pay a tax of 3 per cent on the chassis, regardless of the person to whom it is sold; the dealer probably will pay 3 per cent only on the value of the body applied to the chassis.

When parts of automobiles were exported and assembled abroad no tax was levied on the cost of the parts, under the old ruling. Under a recent decision of the supreme court, however, this ruling has been suspended temporarily pending a review of the situation. It may be that exporters of disassembled automobiles will be required to pay a 3 per cent tax.

Detroit Electric Factory Enlarged

DETROIT, May 27—A new building for the Anderson Electric Car Co. is now in course of construction. It will be two stories high and 200 x 400, giving, when completed, 160,000 additional square feet of floor space. The addition was necessitated to enable the company to keep pace with the demand.

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Don't Grab Bonds as Payment to Make Sale

It Is Not Patriotic, Says Joe Schlecht to Go Into the Bond Bartering Business

ST. LOUIS, May 27—The buying of Liberty Bonds was only the primary test for patriotism of money, according to Joseph A. Schlecht, president of the St. Louis Automobile Manufacturers' and Dealers' Association. He illustrates his meaning in this way:

"A few days ago a banker from North Blank, Ill., came into my salesroom and looked over the cars. He picked an Allen car and offered to buy it if I would accept $1,000 Liberty Bonds on the purchase price.

"I happened to know something about West Blank. I knew that when the Liberty Bond drive was made this banker headed the list and accepted full praise for his patriotism and was quite the town pride. I told him:

"'I happen to know how you bought those bonds and of the credit that was given to you. It does not strike me as being at all patriotic for you to want to sell them at the first opportunity. I will not sell the car on those terms.'

"I suppose," continued Schlecht, "that he bought a car some place on his terms, but I am glad to say that I was not a party to the sale. I do not mind some bonds on a car from persons who need the car and who have been saving to buy one. But I consider it my patriotic duty to decline to accept practically all bonds from persons who can hold them for themselves. I have found most dealers here of the same opinion and I believe the dealers of the country should take this stand."

Distribution Plan for Fordson Tractor Plows

SOUTH BEND, IND., May 27—In distributing the No. 7 tractor plows which are made especially for the Ford tractors, the Oliver Chilled Plow Works sells them either to the people who distribute the Ford tractors, who in turn sell them to retail dealers to be resold to the farmers, or in cases where distributing connections have not been made, the company disposes of the plows to retail dealers to be sold to farmers. In every instance the retail dealer is protected and assured of a reasonable profit. This makes it possible for the retail dealer to give the farmers such service as they may require. No plows are sold direct to the farmers by the company.

Two More Monarch Tractors

WATERTOWN, WIS., May 27—Plans for extensions to the plant of the Monarch Tractor Co. were approved at the annual meeting of the corporation, and arrangements completed for increasing the weekly output to thirty tractors a week. As soon as practicable, two new sizes will be added, giving a line of three types. Work on a large machine-shop addition has been undertaken and the foundry will be enlarged when the shop is completed. The company is capitalized at $500,000 and recently organized a Canadian company under similar name, to build a plant in Toronto, to handle increasing Canadian requirements, now filled from Watertown. Officers were elected as follows at the annual meeting: President, W. N. Smith; vice-president, Albert F. Leopold, Chicago; second vice-president, J. S. Sebree, North Dakota; third vice-president, F. L. Thomas, Watertown; secretary-treasurer, Walter H. Stiemke, Watertown; directors, Max Rohr, Watertown; H. O. Pond, New York; E. M. Sverdloff, Moscow, Russia; H. Garfield Taylor, Chicago.

Independent Harvester Elects

MILWAUKEE, WIS., May 27—The Independent Harvester Co., Ltd., organized by Milwaukee capital as successor to the Independent Harvester Co., Plano, Ill., has elected these officers: President, Lawrence Fitch, president Western Malleables Co., Beaver Dam, Wis., and treasurer Globe Seamless Steel Tubes Co., Milwaukee; vice-president, A. J. Earling, president board of directors, Chicago, Milwaukee & St. Paul Railway Co.; secretary, A. W. Wilbrand, secretary Western Malleables Co.; treasurer, Grand Fitch, vice-president National Exchange Bank, Milwaukee. The capital stock of the new company is $3,500,000. It has taken over the plant in Plano, which has been in the hands of a receiver since last December, and will continue production on an increased scale, engaging in the manufacture of tractors in addition to farm machinery.

Des Moines Discusses Roads

DES MOINES, May 27—Motor Trades Bureau of the Chamber of Commerce gave its May meeting over to the good roads question. Representatives of the three principal marked highways which go through Des Moines, the Jefferson Highway, the Great Whiteway and the River to River Road, were present at the meeting, as were members of the Des Moines City Council and the Polk County supervisors. Thomas H. McDonald, head of the Iowa State Highway Commission of Ames, made the principal address. A considerable program for the coming summer was outlined by city and council officials. Major Charles A. Watrous of the Supply Train at Camp Dodge, who drove out the fleet of twelve Liberty trucks recently, paid his "respects" to the Iowa dirt roads.

Osmond Gets Winton

MILWAUKEE, WIS., May 27 — The Winton Co., Cleveland, O., has discontinued its Milwaukee branch at 503-507 Broadway, and the Winton line henceforth will be distributed by the Osmond Motor Car Co., state distributer also of the Chamlers. The Osmond company has moved into the former Winton branch house quarters from 215 Wisconsin Street.

St. Louis Accessory Men Choose Sheford

Picked to Head Association a Second Term—First to Get Re-election Honor

ST. LOUIS, May 27—John F. Sheford, wholesale manager for the Bittel-Leftwich Co., was elected president of the Motor Accessory Trade Association at the May meeting. Sheford has served one previous term as president and is the first to be elected for a second term. Other officers elected were: Vice-president, W. L. Ferrier, Fred Campbell Auto Supply Co.; Secretary, R. E. Lee, incumbent; Treasurer, A. R. Baxter, Shurnuff Mfg. Co.; Directors: L. E. Allman, Missouri Auto Specialty Co.; W. L. Patterson, Henry Motor Co.; W. A. F. Ulenhaut, Ulenhaut Wagon Co.; T. Frank Wood, Shapleigh Hardware Co.; E. S. Marvin (retiring president), Imperial Oil Co.; sergeant-at-arms, William D. Clark, Vehicle Top and Supply Co.

Attention of the dealers was called to the accessories and parts for farm tractors in an address by Douglas R. A. Drummond, field editor of Power Farming and Power Farming Dealer. He said that this was a big and growing field and that it was necessary that such accessories be generally sold. He also told of the field of service in connection with household lighting systems and starting appliances for tractors.

Minneapolis After Tire Abuses

MINNEAPOLIS, May 27—The Minneapolis Tire Dealers Association has planned a campaign of uplift of the business. It has written letters to all jobbers, branches, manufacturers and retailers in the tire business to help. The association first cleaned its own skirts of business abuses and now wants all outsiders to join in. A meeting was called for May 23 at the Odin Club, a regular meeting night of the association, to talk it over. One abuse to be righted is selling tires at less than retail prices to consumers. Unwarranted adjustments have reached a bad stage in the city and the tire men want to get rid of this. They do not want to put on branch-sold tires in their service stations free of cost. The association is going after other distributers hammer and tongs and expects close co-operation.

Hartford-Buick Out For Cash

HARTFORD, May 27—The tendency to cut out credit business in garages in this section is emphasized by the policy of the Hartford Buick Co. This concern recently erected a big white sign with red letters to the effect that "Owing to the number of Buick car owners in this vicinity it would be impossible to open accounts for parts and repairs. Therefore all Buick parts and repairs cash."

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Here's Some Business for the Truck Dealer

Government to Boost Rural Express Route Idea—Will Mean Sale of Lots of Trucks

WASHINGTON, May 27—The Highways Transport Committee of the Council of National Defense has outlined a plan for concerted action to facilitate the establishment of Rural Express Routes in practically every state in the union. Since conditions under which such routes would have to be formed differ in all states, because of geographical conditions, etc., it is proposed to carry on the work through the various State Councils of Defense and ultimately through similar public and semi-public organizations in the large cities.

A start in the organization of such routes already has been made in the vicinity of Washington. There are twenty-two Rural Express Routes now operating in Maryland; fifteen operate out of Baltimore; five out of Washington, and one out of Cumberland. Thirty trucks, having a combined capacity of 73½ tons, cover 1574 miles daily on these routes. They afford a possible daily service of 115,690 ton-miles or 35,000,000 ton-miles a year. They can haul more than 100,000 tons of farm produce into Baltimore and Washington every day and carry an equal amount of merchandise back to the farmers and country merchants.

The shortest route is 10 miles from Baltimore to Ellicott city, and the longest is 47 miles from Baltimore to Frederick. Recently, daily service has been started between Philadelphia, Baltimore and Washington by a trucking company that has had a fleet of trucks in operation between New York and Philadelphia —104 miles—since last September.

Every kind of produce raised on farms, all sorts of goods raised by farmers, and various products of factories are handled by the trucks. The list includes vegetables, fruit, corn, wheat, milk, butter, eggs, chickens, live calves, cows and pigs, fertilizer, wood, coal, farm machinery and repair parts, groceries, drugs, clothing, shoes, hardware house furnishings, fixtures, musical instruments jewelry and newspapers. The market price of produce in Baltimore at present averages 20 per cent lower than in Washington and this is ascribed to the Rural Express Routes which feed Baltimore from outlying agriculture areas.

The Council of National Defense is suggesting that local councils prepare maps showing improved roads within a radius of 50 miles or so of population centers which are surrounded by agricultural areas from which food may be brought. With these maps in hand, the next step is to ascertain where it would be advantageous to establish routes, after which it is suggested that negotiations be carried on with farmers along such routes with a view to interesting them in the use of existing trucks for carrying their own produce to market and that of other farmers along the route.

The Highways Transport Committee has sent out a questionnaire to farmers in the vicinity of Washington along these lines and has received very encouraging replies. These replies will be used as a basis in assisting in the organization of additional routes between Washington and nearby farming centers.

President Takes Ride in a Tank



PRESIDENT WILSON, who is always doing some ordinary every-day thing, lived up to his reputation recently when the British tank Britannia was rambling around Washington. He enjoyed his ride just as much as the rest of the novelty seekers. He also did something we all should imitate—smile

Velie Men Band Together

BOSTON, May 27—The New England Velie Co. has formed the Velie Social Club among its employees, men and women, and Amos J. Shorey has been chosen president. Since the company has taken on the Kissel line, allowing a large number of other employees to join, the club will change its name to the Velie-Kissel Club. At its monthly meeting a few nights ago President Shorey gave the members a talk on what was being done at Washington, where he had been spending some time. James T. Sullivan, automobile editor of the Boston Globe, gave a talk on motor legislation. The club voted to consider the advisability of forming a marching club to take part in patriotic parades in the future.

Chandler Men Form Organization

BOSTON, May 27—The employees of the Chandler Motors Co. of New England have banded together for social purposes, and they have formed an orchestra to entertain themselves. The officials of the company presented the club with a piano, and the employees enjoy the use of the used car department for dances and entertainments.

Boston Picks Orphan Outing Day

BOSTON, May 27—Secretary Chester I. Campbell of the Boston Automobile Dealers' Association has picked out Wednesday, June 5, as the day for the annual outing of the crippled and orphaned children in the different homes in and about Boston. It is planned to get some 700 cars for this purpose, and take the children to Nantasket Beach.

Use Trucks to Haul Grain to Elevators

Practise Growing in Southwest—New System May Be Established—Means Truck Sales

WICHITA, KAN., May 27—The coming summer will doubtless see a radical change in tendency in the movement of grain from farm to elevator and mills. The effort to relieve congestion of railroads will undoubtedly result in the development of motor transportation of grain.

For instance, grain which formerly was hauled three or four miles to railroad and then carried six or eight miles by railroad to an elevator, is going to be hauled the entire distance to the elevator from the farm by motor truck or tractor with trailer.

It is likely that within the next year many millers and elevator companies will build new elevators—not on railroads but on highways over which they may run their own truck and tractor lines. The subject is being seriously considered by at least one Kansas miller who is seeking to avoid the double handling of the grain and the delays due to waiting for freight cars.

It is interesting to note that this miller is not worrying over the condition of the roads while planning his project. Most of the roads in the wheat district have tractors running over them during the harvest season, the tractor operators being accustomed to laying planks over culverts and bridges that are not normally able to carry the heavy loads.

An incidental advantage to the miller who is establishing his own truck line and elevators on highways is that he need not worry over rates from origin to destination. He need consider only one freight rate, that from his own elevator or mill to the station of the purchaser of his wheat or his product.

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-62	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	$1595	....	$1595	$2150	$2150	....	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1145	$1095	....	....	1395	....	....
AMERICAN																	
B	6-3½x5	23.4	G & D	Zenith	G & D	DD	3	122	32x4	SS	1645	1595	1695	....	....	....	....
ANDERSON																	
20	6-3½x4½	25.3	Conn	Zenith	Wsths	DP	3	120	33x4	SS	**1465	....	....	....	2165	....	....
400-F	6-3½x5½	29.4	Bosch	Stmbg	Wsths	DD	3	120	33x4	SS	**1925	....	....	....	....	....	....
APPERSON																	
8-18	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	34x4 32x4½	SS	†2550	....	2550 3500	....	....	....	....
8th Anniversary																	
AUBURN																	
6-39-B	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	120	34x4	SS	1345	1345	....	....	....	....	1595
6-44	6-3½x5½	29.4	Delco	Rafid	Delco	DP	3	131	35x4½	SS	....	1685	1685	....	2450	....	1985
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142	34x4½	QD	3750	3750	4000	4550	5000	5350	....
BELL																	
18	4-3½x4½	22.5	A.Kent	Zenith	Dyneto	D	3	114	32x3½	QD	†995	995	....	....	....	....	....
BIDDLE																	
H	4-3½x5½	22.5	Eisman	Zenith	G & D	DP	4	121	32x4	QD	2600	....	†2650	....	4100	4000	....
BOUR-DAVIS																	
18B	6-3½x5½	29.4	West.	Stmbg	West.	DP	3	118	33x4½	QD	....	1785	....	....	....	....	....
	4-3½x5½	22.5	West.	Rafid	West.	DP	3	118	32x4½	....	....	1680	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	5500	....	....	....	9400	8500	....
BRISCOE																	
B4-24	4-3 1/16x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	825	825	....	....	....	....	850
BUICK																	
E 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	1185	1845	....
E 44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	....	†1695	....	....	1365
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	125 132	35x5	SS	2070	†2970	2970	....	3840	4160	....
CASE																	
U	6-3½x5½	29.4	Wsths	Rafid	Wsths	D	3	125	35x4½	SS	†1875	1875	1875	....	**2375	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wsths	DP	3	117 122	32x4 34x4	SS	1565	1565	1615	1625	1950	2025	....
CHANDLER																	
	6-3½x5	29.4	Bosch	Rafid	Wsths	DP	3	123	34x4	SS	†1595	†1675	1595	2195	2295	2395	....
CHEVROLET																	
490	4-3 1/16x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3½	C	660	685	....	....	1060	....	....
FA	4-3 1/16x5½	21.7	Remy	Zenith	A-Lite	C	3	108	33x4	SS	935	935	....	....	1475	....	....
D	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	120	34x4	SS	†1550	1550	....	....	....	....	....
COLE																	
870	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	33x5	SS	2395	†2395	2395	2495	2595 2795	....	....
COLUMBIA																	
C&D	6-3½x4½	25.3	A.Kent	Stmbg	W.Lnrd	DP	3	115	32x4	....	†1495	1450	....	....	2395	....	....
COMET																	
C-50	6-3½x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	....	....	....	1385	....	....	....	....
COMMONWEALTH																	
4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	115	32x3½	SS	†995	1095	....	....	....	....	....
CROW-ELKHART																	
CE-36	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114	32x3½	SS	995	995	....	1295	1395	....	....
CUNNINGHAM																	
	8-3½x5	45.0	Delco	Stmbg	West	D	3	122 142	35x5 37x5	....	....	4250 4750	....	....	....	....	....
DANIELS																	
B	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	3500	3500	3500	....	....	....	....
DAVIS																	
H, I	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1585	1585	....	1950	....	....
J, I	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	125	34x4½	....	....	1950	1950	....	....	....	....
DIXIE FLYER																	
L295	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	1095	1095	....	....	1375	....	....

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	$830	....	....	$1095	....	....	$865
B	6-3½x4½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	1150	$1150	*$1150	1650	$1650	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3750	3700	3750	.....	5180	5250	....
MAXWELL																	
25	4-3½x4½	21.0	A.Kent	K D	Simms	C	3	109	30x3½	C	‡825	825	....	....	1275	(1275 (1175	985
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wsths	DP	3	136	35x5	QD	3900	3900	3900	....	5000	5050	....
MERCER																	
Series 4	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3850	*3850	....	....	....	....	.....
METZ																	
25	4-3½x4	24.0	A.Kent	A.W.T.	Wsths	F	.	106	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.3	Remy	Rafid	Remy	C	3	120	32x4	SS	1350	1350	....	1900	2000	....	300x
C-42	6-3½x5	29.4	Remy	Stmbg	Remy	C	3	127	34x4	SS	‡1565	1625	1625	2210	2375	2850	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1750	1750	....	....	2280	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†2375	....	2375	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	110	32x3½	SS	995	995	....	....	....	....	....
J	6-3½x4½	25.3	Conn	Stmbg	Dyneto	D	3	117	33x4	SS	1295	1295	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	31x3½	QD	565	‡635	....	....	965	....	....
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x3½	QD	....	995	....	....	1850	....	....
MOON																	
6-36	6-2½x4½	19.8	Delco	Tittn	Wagner	DP	3	114	32x3½	SS	.....	1295	....	....	....	....	....
6-66	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1985	....	1985	2650	2650	....	....
MOORE																	
30	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	106	30x3½	....	695	....	....	....	....	....	....
MURRAY																	
	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	....	2800	2800	2800	3600	....	4000	....
NASH																	
682															1545	....	....
681-683 684-685	6-3½x5	25.3	Delco	Marvel	Delco	P	3	127 121	34x4	SS	†1395	1395	....	2085	2085	....	....
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafid	Wsths	C	3	128	34x4½	QDR	†2150	†2150	2150	2645	2820	....	....
Twelve	12-2½x4½	39.6	Delco	Rafid	Bijur	C	3	128	34x4½	QDR	†2750	†2750	2750	3345	3420	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	....	....	....
OAKLAND																	
34-B	6-2 1/16x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1050	1050	....	1550	1550	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1550	....	....	....	....
37	6-2 1/16x4½	18.9	Remy	Johnson	Remy	C	3	112	32x4	SS	†1195	1195	....	1595	1695	....	....
OLYMPIAN																	
	4-3½x4½	16.9	Conn	Stmbg	A-Lite	D	3	112	32x3½	....	†1085	1085	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Tittn	A-Lite	C	3	112	32x4	SS	‡965	965	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Tittn	A-Lite	C	3	104 106	31x4	C	825	850	†875	....	1340	....	....
85B6	6-3½x4½	25.3	.....	Tittn	A-Lite	C	3	116	32x4	....	1195	1195	....	1420	1620	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.7						136			‡3950	‡3950	3950	....	....	5000	....
W-42	6-4 x5½	38.4	Bosch	Zenith	O-M	OM	6	142	35x5	SS	....	....	5300	....	6300	6300	....
PACKARD																	
3-35								136			....	....	4300	....	....	5850	....
3-25	12-3 x5	43.2	Delco	Own	Bijur	DD	3	128	35x5	QD	....	3950	3950	5300	....	5500	....
PAIGE																	
6-39	6-3½x5	23.4	Remy	Stmbg	G & D	D	3	117	32x4	SS	1395	1395	....	....	1925	....	....
6-55	6-3½x5½	29.4	Remy	Rafid	Remy	D	3	127	35x4½	SS	....	....	1850	2850	....	3250	....

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DOBLE-DETROIT																			
	2-5 x4	....	Doble	Stmbg	Wagner	..	.	135	35x5	....	....	....	3750	....	....	....	....
DODGE BROTHERS																			
	4-3½x4½	24.0	Delco	Stewart	N.E.	D	3	114	{32x3½ 33x4	SS	985	985	....	1425	1425	....	....
DORRIS																			
6-80	6-4 x5	38.4	Bosch	Stmbg	Wsths	DD	3	132	33x5	SS	....	....	....	....	....	....	....
DORT																			
11	4-3½x5	19.6	Conn	Carter	Wsths	C	3	105	30x3½	QD	925	925	**1060	1325	1325	....	....
DOUGLAS	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	122	34x4	SS	...	2000	....	....	....	....	....
ELCAR																			
D.F.	4-3½x5	19.6	A.Kent	L-O	Dyneto	DP	3	116	{33x4 32x3½	SS	....	1095	1095	....	{1625 1795	....	....
	6-3½x4½	25.3	A.Kent	Stmbg	Dyneto	P	3	116	33x4	....	....	1295	1295	....	....	....	....
ELGIN																			
A	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	117	33x4	....	†1195	1095	....	....	**1645	....	....
EMPIRE																			
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS	1165	1125	....	....	....	....	....
70-A	6-3½x4½	25.3	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	....	1345	1375	....	....	....	....
73	.....	....	.....	.....	.....		.	...	....	....	....	†1360	....	....	....	....	....
ESSEX	4-3½x5	18.2	Delco	Own	Delco	D	3	108½	32x4	....	....	1395	....	....	....	....	....
FIAT																			
E-17	4-5½x6½	44.1	Bosch	Zenith	Wsths	D	4	140	35x5	QD	....	....	5500	....	....	6500	....
FORD																			
T	4-3½x4	22.5	Own	{Holly Kngstn	.....	D	2	100	30x3½r	C	435	450	....	650	785	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	33x4½	SS	2200	†2445	2445	2850	3050	3200	....
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	....
GRANT																			
G	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	114	32x3½	....	‡1095	1095	....	1575	1595	....	1350
HALLADAY																			
S	6-3½x5	23.4	A-Lite	Zenith	Wsths	D	3	{120	34x4	SS	‡1375	1375	....	....	....	....	....
R	.....	....	.....	.....	.....	..	.	{122	....		1530	1530	....	....	....	....	....
HARROUN																			
	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....	....	895	....	....	....	....	....
HARVARD																			
4-30	4-3 x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	785	†985	....	....	....	....	....
HAYNES																			
38	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1850	....	....	....	....	....
39	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1950	....	1950	2660	....	....	....
44	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2910	....	2910	....	3460	....	....
HOLLIER																			
206	6-3½x4½	25.3	Remy	Stmbg	Splitdf	C	3	116	32x4	SS	....	1485	....	....	....	....	....
188	8-3 x4½	28.8	A.Kent	Stewart	Splitdf	C	3	116	34x4	SS	†1385	1385	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco.	Own	Delco	D	3	125½	34x4*	SS	....	†2050	1950	....	2750	3400	....
HUPMOBILE																			
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x4	....	1350	1350	....	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	950	1000	1025	....	....	....	....
JACKSON																			
349	8-3 x3½	28.8	A.Lite	Zenith	A-Lite	DP	3	118	34x4	SS	†1495	1495	1570	....	2195	....	....
JONES																			
27-ABC	6-3½x5½	29.4	Remy	Rafid	Wsths	DP	3	125	34x4	SS	†1875	1875	1875	....	2750	....	....
JORDAN																			
J-60	6-3½x5½	29.4	Delco	Stmbg	Bijur	DD	3	127	33x4½	SS	1995	†1995	1995	....	2750	3500	....
KING																			
F	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	....	†2350	2150	....	**2950	....	....
KISSEL																			
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1495	1495	1585	1935	1935	....	1935
Double-6	12-2½x5	39.6	Delco	Stmbg	Own	DD	3	128	34x4½	....	1585	....	2450	....	2850	....	2850
KLINE																			
6-38	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1495	1495	†1495	....	2200	....	....
LEXINGTON																			
6-O	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	....	1385	....	....	1545	....	....
6-R	6-3½x4½	25.3	Conn	Rafid	Wsths	P	3	122	34x4	QD	....	1585	1585	....	1785	....	....
LIBERTY																			
10-B	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1385	1385	....	....	1925	....	....
LOCOMOBILE																			
E-38	6-4½x5	43.3	Berling	B & Ball	Wsths	DD	4	139	37x5	QD	†5150	*5000	5000	....	....	6200	....
E-48	6-4½x5½	48.6	Berling	B & Ball	Wsths	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7200	....
LOZIER																			
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	....	....	..
82	6-3½x6	36.0	Elsman	Rafid	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	. ..	....
LUVERNE																			
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD	.	132	35x4½	SS	....	....	1650	....	....	....	....
MADISON								{124											
	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	{120	34x4	SS	†1485	1485	1485	....	....	....	....
PAN-AMERICAN																			
G-5	6-3½x5	23.4	G & D	Rafid	G & D	D	3	120	33x4½	SS	....	1650	....	1650	....	1960	....
PATERSON																			
6-45	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	120	32x4	C	†1295	1265	1295	....	**1795	....	....
PEERLESS																			
56	8-3½x5	33.8	A.Kent	B&Ball	A-Lite	DD	3	125	35x4½	SS	†2550	....	2550	3050	3250	3600	....
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	34x4½	QD	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60.0	Bosch	Own	Wsths	C	4	147½	36x5½	QD	†6400	6400	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	23.4	Delco	Titsn	Delco	DP	3	120	32x4	SS	†1395	1395	....	....	....	....	....
PREMIER																			
6-C	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	....	†2285	2285	....	....	....	....
PRINCESS																			
36-F	4-3½x4½	22.5	Splitdf	Schebler	Disco	D	3	108	32x3½	....	875	875	875	....	....	....	....
REGAL																			
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD	....	795	....	....	....	....	....
REO																			
	6-3½x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	1550	1550	....	....	....	....
	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	120	34x4	SS	1225	1225	....	....	....	....	....
REVERE																			
	4-4½x6	30.6	Bosch	Stmbg	Bijur	DD	4	130	32x4½	....	....	....	....	....	....	....	....
ROAMER																			
C-6-54	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DP	3	128	32x4	SS	2475	†2375	....	....	....	....	....
D-4-75	4-4 x6	25.6	Bosch	Stmbg	Bijur	DP	3	128	32x4½	SS	....	....	2475	....	3250	....	....
ROSS																			
	8-3½x5	33.8	.....	.....	W.Lnrd	DD	3	130	35x4½	SS	‡1850	....	1850	....	....	....	....
SAXON																			
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	935	1045	....	1395	....	....	....
SAYERS																			
SIX-42	6-3½x4½	25.3	Delco	.....	Delco	P	3	118	32x4	....	....	1395	....	....	....	....	....
SCRIPPS-BOOTH																			
D&H	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1285	....	....	....	....	....	....
G	4-3½x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	‡935	....	....	....	....	....	....
Six-39	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1195	1195	....	....	....	....	....
SIMPLEX																			
V	6-4½x6½	45.9	Eisman	Nwcmb	Bosch	D	4	143½	37x5r	QD	Chassis	7000	....	....	....	....	....
SINGER																			
	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	139	35x5	QD	4200	†4325	4100	....	5250	5125	....
STANDARD																			
G	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	....	†2450	....	2450	....	3500	4000	....
STANLEY																			
Steamer	2-4 x5	12.8	.....	.....	.....	..	.	130	35x4½	SS	....	†2750	2800	....	....	....	....
STEARNS																			
SK14	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS	†1935	1935	2175	2400	2575	3200	....
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	125	35x4½	SS	†2700	....	2700	3200	....	3875	....
STEPHENS																			
Salient Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	118	32x4	SS	1585	1585	†1650	....	2085	....	....
STUDEBAKER																			
SH-4-40	4-3½x5	19.6	Remy	Schebler	Wagner	C	3	112	32x3½	SS	1050	995	....	....	1525	....	....
EH-6-50	6-3½x5	29.4	Remy	B&Ball	Wagner	C	3	119	32x4	SS	1450	1395	†1395	....	....	....	....
E-G-6	6-3½x5	36.0	Remy	B&Ball	Wagner	C	3	126	33x4½	....	....	1795	....	....	1950	....	....
STUTZ																			
S-7	4-4½x5	30.6	Delco	Stmbg	Remy	C	3	{120 130	32x4½	SS	2550	†2650	*2750	....	....	....	....
SUN																			
17	6-3½x5	29.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	....	....	....	....
TEMPLAR																			
A-445	4-3½x5½	18.2	Remy	Zenith	Remy	P	3	118	32x4	SS	2385	2085	....	....	....	....	....
VELIE																			
38	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS	1390	1390	†1390	....	1935	....	....
39	6-3½x5½	29.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS	....	....	1645	....	....	....	....
WESTCOTT																			
S-18	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1990	2290	2090	**2890	**2890	....	....
WHITE																			
16-Valve	4-4½x5½	28.9	.....	Own	L-N	P	4	{124½ 137½	35x5	U	†5000	....	†5000	6050	6050	6200	....
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Titsn	A-Lite	C	3	121	34x4½	SS	....	....	1625	2275	2325	2425	....
88-8	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	125	34x4½	SS	†2550	....	2100	....	2800	2900	....
WILLYS																			
89-6	6-3½x5½	29.4	Conn	Titsn	A-Lite	C	3	120	33x4½	SS	†1450	....	1450	....	1330	....	....
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	3150	3150	3200	4150	4400	4400	....
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3850	3850	3850	4850	5100	5100	....
WOOD'S																			
Dual Power	4-2½x4	12.1	A.Kent	Stmbg	Own	Mag	.	124	35x4½	QD	....	....	....	2950	....	....	....

*6-passenger. †4-passenger. ‡3-passenger. t-town car.
**Convertible.

ABBREVIATIONS—"A. Kent" Atwater Kent, "A-Lite" Auto-Lite, "B. & Ball" Ball & Ball," "Conn" Connecticut, "G & D" Gray & Davis, "Eisman" Eisemann, "L-N" Leece-Neville, "N. E." North East "Nwcmb" Newcomb, "O-M" Owen Magnetic, "Rafid" Rayfield, "Stmbg" Stromberg, "Splitdf" Splitdorf, "Titsn" Tillottson, "Wsths" Westinghouse, "W. Lnrd" Ward Leonard, "D" Disk, "DD" Dry Disk, "P" Plate, "DP" Dry Plate, "C" Cone, "F" Friction, "G" Gearless, "CU" Control Unit, "Mag" Magnetic, "SS" Straightside, "QD" Quick Detachable, "C" Clincher, "DC" Detachable Clincher, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers, . NOTE—37½x5½ r means that the rear tires are 37x5½ and the front are smaller. Detachable top, 300x, means $300 extra.

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The Secret of Safety in 1918

"THE secret of business safety during the coming season lies in anticipation of needs and conservation of resources," in the opinion of B. O. Leftwich, treasurer and general manager of the Bittel-Leftwich Co., jobber, of this city, who has seen the business over which he presides grow from a newly established tire service company to a wholesale and retail tire and accessory business doing a business of considerably more than $1,000,000 a year.

"The safety valve of the present is in the trade acceptance, the best single piece of business aid this country has seen, and in intelligent accounting," according to Leftwich, who has been elected president of a bank during his short business career and is quite active in that work.

"There are some firms that are going about the present work entirely wrong. I personally know of some firms who are making inventories by crediting their stock with every advance in price, regardless of cost or the peace time value of the article. If the war were to end suddenly, or for any reason the ban on material for making these accessories were lifted, these firms would be bankrupt over night. *No bank can take a chance on an inventory like that.*

"The two great elements in the present situation are labor and the war. I consider the labor situation foremost at present. The unrest, the demands that must be met because of scarcity of labor, the ability of manufacturers to keep on turning out goods that we merchants must have if we live, our ability to get labor to handle these goods and give the service that we have established; all of these things enter into the situation.

"In times like these a man cannot play too safe. Every firm ought to lay aside a fund as a guarantee against the later turn of merchandise and to keep strict account of all expenses to know exactly what expenses mean.

"Bookkeeping showed us where we had been keeping our service cars on the road just double the profitable time for running such cars. It cost us $5,000 to keep those old cars going before we learned where the limit was. Now we charge off depreciation on each car monthly, so that when the end of the profitable running of a car is reached whatever that car brings as a used car is profit.

"That is the problem that every man must solve in his own business.

Tire Business Should Be Watched

"The tire service is a business that will bear watching carefully. Every successful tire service man in this city has worked for me. A good many tire service concerns have come and gone while we have been building up our business. Nearly all of them thought they could give cheaper service than we could. We knew that they could not and merely waited. Perhaps we could have broken some of them sooner by cutting prices against them, but *we believe that we must make a profit on every transaction or not make the trade.* The other man will learn sooner or later where the limit lies. *Most learn too late.*

"This is not a period for experiments either in expenses or in running on small stock or carrying too large a stock. A man must measure his prospects carefully and then act accordingly. I have been urging upon our customers the necessity of this action and have been endeavoring to show them how the trade acceptance makes this possible on a cash basis. Our last appeal to our customers was the letter that follows:

Trade Acceptance Letter

"For some time past we have been giving a lot of thought and investigation to the two following matters, which are of vital importance to our company and your good selves:

"FIRST—The ability of the manufacturers whom we represent to fill our orders, and

"SECOND—The ability and willingness of the railroad company to deliver to us the products of these manufacturers, and our ability to re-ship them to you.

"We find conditions from every standpoint exceedingly unsatisfactory. In cases where we are able to find manufacturers with sufficient stock on hand to supply us, we find the embargoes, etc., are such that the goods cannot be shipped to us.

"We further find it is a very hard proposition at certain periods to even make local shipments from our St. Louis warehouse to you; hence this letter and the following suggestions:

"Every indication points to a hot summer, which means the maximum amount of automobile driving and the necessity of having tires and accessories on hand to fill your orders.

"It is our suggestion that you go over your stock immediately, and mail us your order for at least a ninety-day turn-over. We will be glad to sell these goods to you on the basis of a ninety-day trade acceptance, that is a trade acceptance for the amount of your invoice, dated 90 days from the date of shipment, which will give you ample time to dispose of the stock in the majority of cases, before the acceptance falls due.

"Our Government is highly recommending the use of this sort of trade paper and we feel it is a patriotic duty for all of us to use this method of payment.

"We are issuing such paper to all of our manufacturers. Should there be any information that we can give you as to the use of these acceptances our accounting department will be very pleased to explain fully to you their advantage.

"The writer desires to take this opportunity to thank you for your patronage in the past and trusts that our pleasant relations will continue in the future. Yours respectfully, BITTEL-LEFTWICH."

Catalog Sizes Standardized

CHICAGO, May 27—The Catalog Conference of the National Assn. of Purchasing Agents passed a resolution yesterday recommending 3 sizes for manufacturers' catalogs. These are 6 x 9 in., 7½ x 10⅝ and 8 x 11. The stock recommended was 40, 45, 50, 60, 70 and 80 lbs. on a 75 x 38 sheet basis. These weights give printers a chance to use accumulated stock. The colors recommended are white and natural.

The recommendations have already been accepted by representatives of the National Gas Enginemen's Assn., the American Institute of Architects and others. Makers of filing cabinets say they will make their products to fit the catalogs, if necessary.

Coming Events

Racing

Sheepshead Bay, N. Y.	Championship	May 30
Chicago	Chicago Speedway	June 22
Cincinnati	Cincinnati Speedway	July 4

Conventions

Hot Springs, Va.	Convention National Association of Automobile Accessory Jobbers.	June 5-12

Show

Dallas, Tex.	Seventh Annual Texas Automobile Show Texas State Fair.	Oct. 14-27

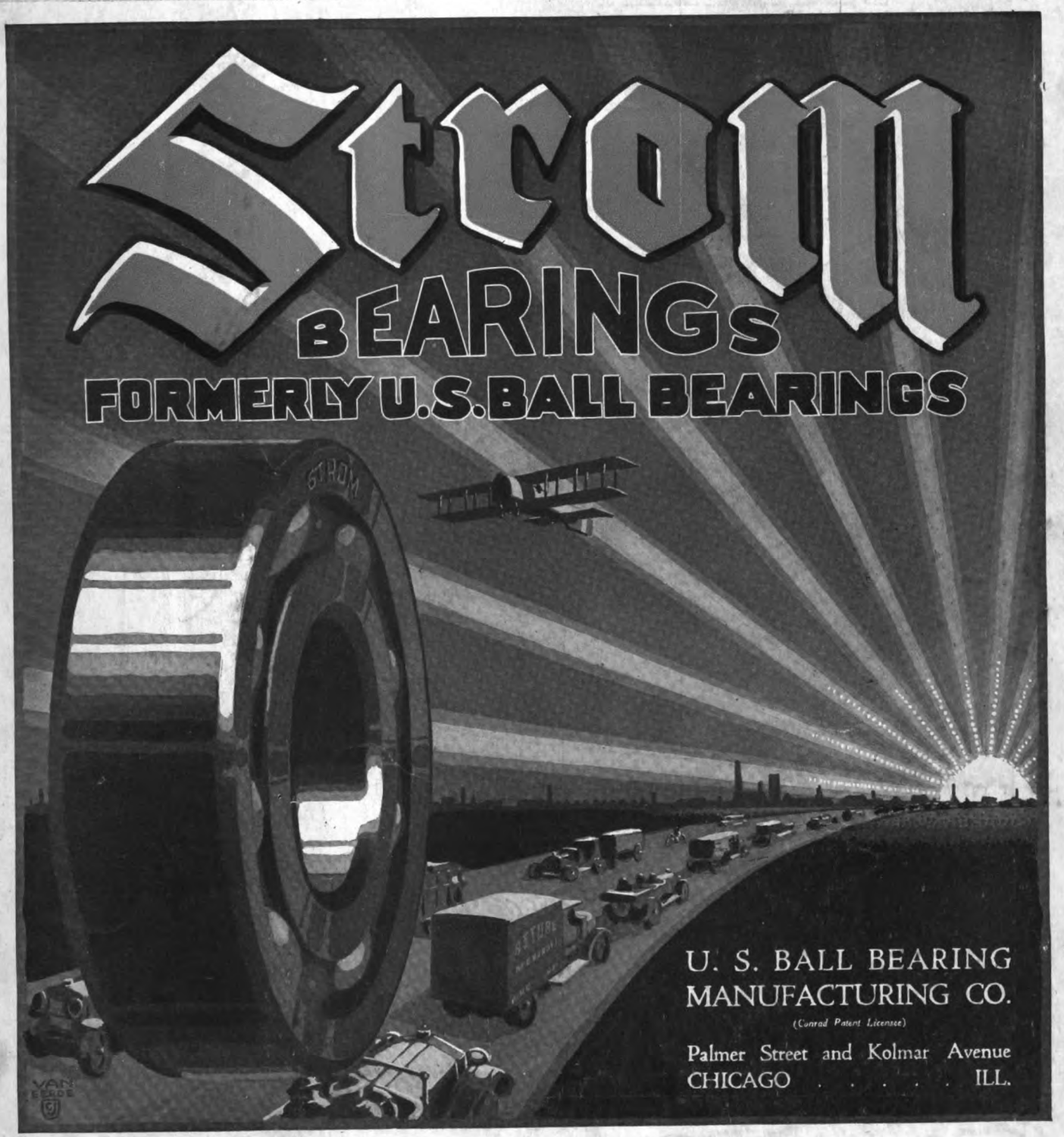
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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume LV
No. 10

New York, June 5, 1918

Ten cents a copy
Two dollars a year



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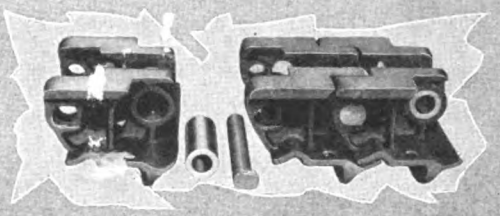
Proved Crawler Durability

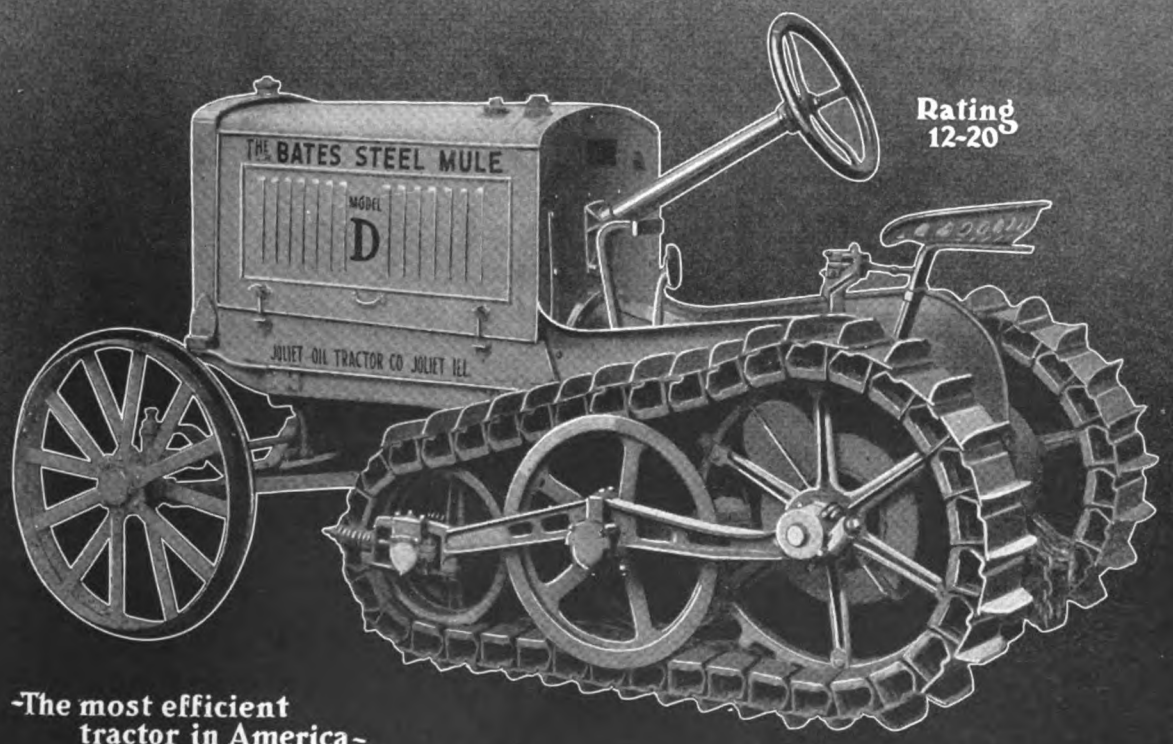
Correct mechanical principles combined with the proper alloy steels, specially heat treated for this hard service, make the BATES STEEL MULE Crawler Shoes endure the life-time of the tractor. The knowledge of what these materials must be and how they must be heat-treated has become known to its builders only through the experience gained during the past six years with thousands of tractors in the field.

No less important than its Crawlers are the Mule's valve-in-head, heavy duty kerosene motor; its hardened cut steel transmission gears; its Timken Roller Bearings; and its enclosed working parts.

Write for complete illustrated descriptive literature.

JOLIET OIL TRACTOR CO.
282 Jackson Street
Joliet, Illinois





Rating 12-20

-The most efficient tractor in America-

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MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

The Class Journal Co.

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A. B. Swetland, General Manager

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Postage stamps will be accepted in payment for subscriptions. Checks, Drafts and Money Orders should be made payable to MOTOR WORLD.

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"NORMA"
PRECISION
BALL BEARINGS
(PATENTED)



Today—whether in men or in machines—the measure of value is the capacity for service. Not so much "what is the price" but "what will it do" is the decisive question. To be saleable today a thing must above all be serviceable. And serviceability commands a ready market and a good price.

"NORMA" Precision Bearings are the standard bearings in high-grade ignition apparatus and lighting generators because the test of time has proved their pre-eminent service capacity. Their maximum-service qualities contribute mightily to the service qualities of those better cars, trucks and tractors that carry "NORMA" equipped accessories.

Be *Sure*—See That Your Electrical Accessories Are "NORMA" Equipped



THE NORMA COMPANY OF AMERICA
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Ball, Roller, Thrust and Combination Bearings

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Selden Trucks

IN-BUILT QUALITY · SELDEN · MOTOR TRUCKS

Another Selden Distributor's Opinion

Selden Trucks

IN-BUILT QUALITY · SELDEN · MOTOR TRUCKS

HUBBELL-OAKES MOTOR COMPANY
DISTRIBUTORS
SOUTH ALABAMA
GEORGIA 1513 CANDLER BUILDING FLORIDA
ATLANTA, GA.,
April 16, 1918

Selden Truck Sales Co.,
Rochester,
N. Y.

Gentlemen:

It is with great pleasure that we review our connection with your organization during the past twelve months. We are exceedingly sorry that we did not make this connection many years ago, as it is a great pleasure to do business with such men as are at the head of your organization.

We are desirous of expressing our sincere appreciation of the fine way in which you have taken care of us during the recent chaotic conditions of railroad embargoes, et cetera; more particularly as we are so far away from the factory and might very easily have been lost in the shuffle.

Had it not been for the clean business methods with which you people do business - this might have been the case.

It is with great pleasure we note the increased production which you are going into and the specifications of the new models look better than ever. We can assure you that we do not have any trouble in selling SELDEN TRUCKS. Our main trouble is getting sufficient trucks to supply the demand and at the present time we have three buyers for every one we can get.

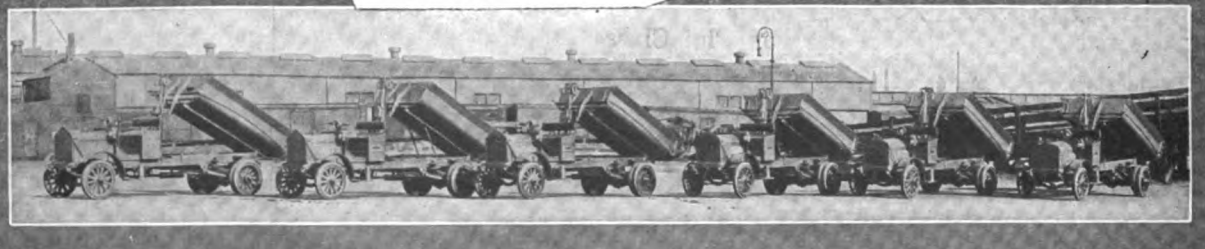
We want to again express our thanks to you for the courteous treatment we have received from you at all times, and extend to you a hearty greeting with an invitation to visit us in the South and give us a chance to show you how popular the great number of SELDEN TRUCKS we have running in our territory are.

With very kindest regards,

Sincerely yours,
HUBBELL-OAKES MOTOR CO.
By Wm C Oakes

WCO-EB

LIGHT DELIVERY AND HEAVY DUTY MOTOR TRUCKS



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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LV New York, U. S. A., Wednesday, June 5, 1918 No. 10

The Horseless Age

The Oldest Automobile Paper in the English Language

Has Been Merged With

MOTOR WORLD

And Other Class Journal Publications

THE merger brings about a combination of strong trade influences which will continue in a more intensified manner the merchandising and trade betterment work that has won such commendation from readers during past years.

THE Horseless Age, the oldest automobile journal in the English language, has been purchased by The Class Journal Co.

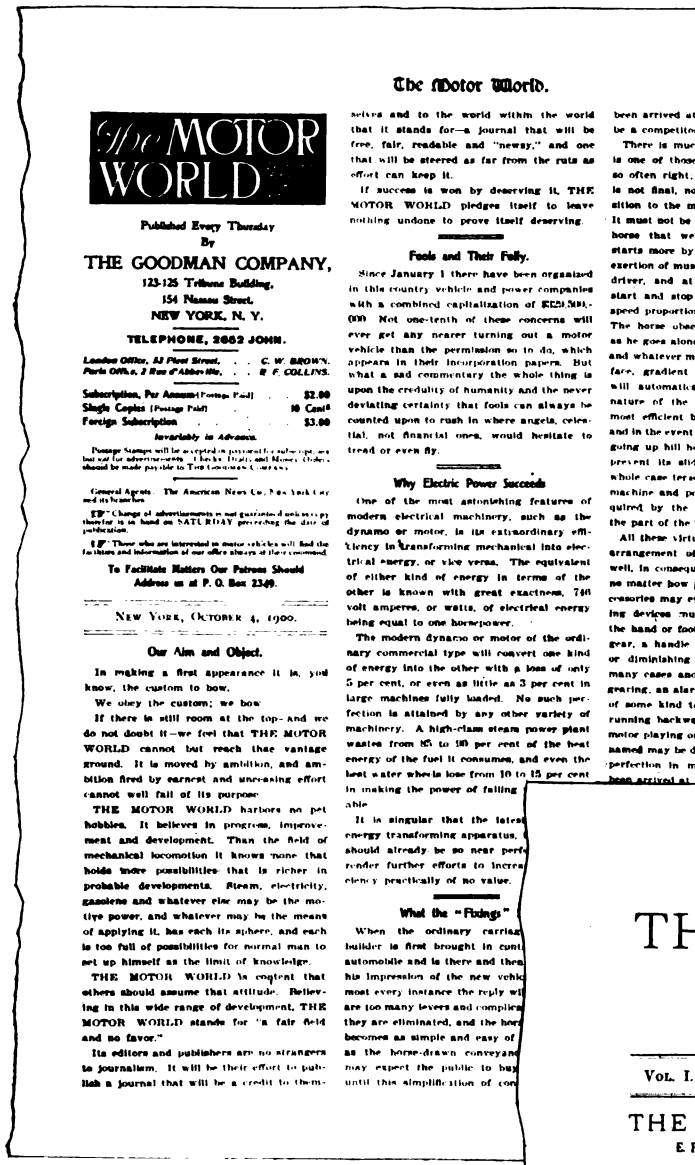
It is, with this issue, made a part of The Class Journal publications, and many of the editorial features of this pioneer motor trade journal have been merged with those of Motor World. Also, a big percentage of the dealers, jobbers, garagemen and salesmen who have been reading The Horseless Age will find that service continued henceforth in Motor World, which they will now receive.

The last issue of The Horseless Age was dated May 15. This acquisition builds still more strongly The Class Journal Co., which like The Horseless Age and Motor World, is a pioneer in the automobile field and has become one of the important factors in the automotive industry's progress. It is one of the large publishing houses of the United States, and is the largest in the automotive field.

By this merger there has been welded into one dynamic unit a wealth of romance and tradition. Strong forces, which for years have been seeking to achieve constructive aims in the industry and trade, have been combined under one leadership, where these forces will co-operate more intensively toward the same ends.

And, too, this extends Class Journal history back into the earliest days of automobile history. It sends

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The Motor World. 5

The MOTOR WORLD

Published Every Thursday
By
THE GOODMAN COMPANY,
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Postage Stamps will be accepted in payment for subscriptions but not for advertisements. Checks, Drafts and Money Orders should be made payable to THE GOODMAN COMPANY.

General Agents. The American News Co., New York City and its branches.

☞ Change of advertisements is not guaranteed unless copy therefor is in hand on SATURDAY preceding the date of publication.

☞ Those who are interested in motor vehicles will find the facilities and information of our office always at their command.

To Facilitate Matters Our Patrons Should Address us at P. O. Box 2349.

NEW YORK, OCTOBER 4, 1900.

Our Aim and Object.

In making a first appearance it is, you know, the custom to bow.

We obey the custom; we bow.

If there is still room at the top—and we do not doubt it—we feel that THE MOTOR WORLD cannot but reach that vantage ground. It is moved by ambition, and ambition fired by earnest and unceasing effort cannot well fail of its purpose.

THE MOTOR WORLD harbors no pet hobbies. It believes in progress, improvement and development. Than the field of mechanical locomotion it knows none that holds more possibilities that is richer in probable developments. Steam, electricity, gasolene and whatever else may be the motive power, and whatever may be the means of applying it, has each its sphere, and each is too full of possibilities for normal man to set up himself as the limit of knowledge.

THE MOTOR WORLD is cognizant that others should assume that attitude. Believing in this wide range of development, THE MOTOR WORLD stands for "a fair field and no favor."

Its editors and publishers are no strangers to journalism. It will be their effort to publish a journal that will be a credit to themselves and to the world within the world that it stands for—a journal that will be free, fair, readable and "newsy," and one that will be steered as far from the ruts as effort can keep it.

If success is won by deserving it, THE MOTOR WORLD pledges itself to leave nothing undone to prove itself deserving.

Fools and Their Folly.

Since January 1 there have been organized in this country vehicle and power companies with a combined capitalization of $259,500,000. Not one-tenth of these concerns will ever get any nearer turning out a motor vehicle than the permission so to do, which appears in their incorporation papers. But what a sad commentary the whole thing is upon the credulity of humanity and the never deviating certainty that fools can always be counted upon to rush in where angels, celestial, not financial ones, would hesitate to tread or even fly.

Why Electric Power Succeeds

One of the most astonishing features of modern electrical machinery, such as the dynamo or motor, is its extraordinary efficiency in transforming mechanical into electrical energy, or vice versa. The equivalent of either kind of energy in terms of the other is known with great exactness, 746 volt amperes, or watts, of electrical energy being equal to one horsepower.

The modern dynamo or motor of the ordinary commercial type will convert one kind of energy into the other with a loss of only 5 per cent, or even as little as 3 per cent in large machines fully loaded. No such perfection is attained by any other variety of machinery. A high-class steam power plant wastes from 85 to 90 per cent of the heat energy of the fuel it consumes, and even the best water wheels lose from 10 to 15 per cent in making the power of falling able.

It is singular that the latest energy transforming apparatus, should already be so near perf render further efforts to increa ciency practically of no value.

What the "Fixings"

When the ordinary carriag builder is first brought in cont automobile and is there and then his impression of the new vehic most every instance the reply wi are too many levers and complica they are eliminated, and the hor becomes as simple and easy of as the horse-drawn conveyanc may expect the public to buy until this simplification of con been arrived at will the new vehicle actually be a competitor of the old one."

There is much that is true in all this. It is one of those first impressions which are so often right, but, even so, the conclusion is not final, nor is it absolute in its opposition to the mechanically propelled vehicle. It must not be forgotten that when driving a horse that well-trained animal stops and starts more by word of mouth than by the exertion of muscular force on the part of the driver, and at other times the horse will start and stop automatically and go at a speed proportionate to the obstacles in front. The horse observes the nature of the road as he goes along, if hard, if muddy, if rough, and whatever may be the condition of its surface, gradient or construction, the animal will automatically adapt his work to the nature of the case. Again, he acts as a most efficient brake when going down hill; and in the event of the carriage stopping when going up hill he is to be ever relied upon to prevent its sliding backward. To put the whole case tersely, the horse is an automatic machine and performs nearly all that is required by the driver without an effort on the part of the latter.

All these virtues can never be found in an arrangement of machinery. It is just as well, in consequence, to at once admit that, no matter how perfect the motor and its accessories may eventually become, the following devices must always be present under the hand or foot of the driver: The steering gear, a handle of some kind for increasing or diminishing the motive power, and in many cases another handle for altering the gearing, an alarm, a brake and another catch of some kind to prevent the machine from running backward on a hill in event of the motor playing out from any cause. The last-named may be dispensed with when the same perfection in mechanical road vehicles has been arrived at that has been reached in the

Above is shown the editorial page from the first issue of MOTOR WORLD, *Oct.* 4, 1900

the roots of the Class Journal organization back to the beginning of the gasoline age and adds a final touch to the great structure which the Class Journal founders built—and are still building—over a period of more than twenty years.

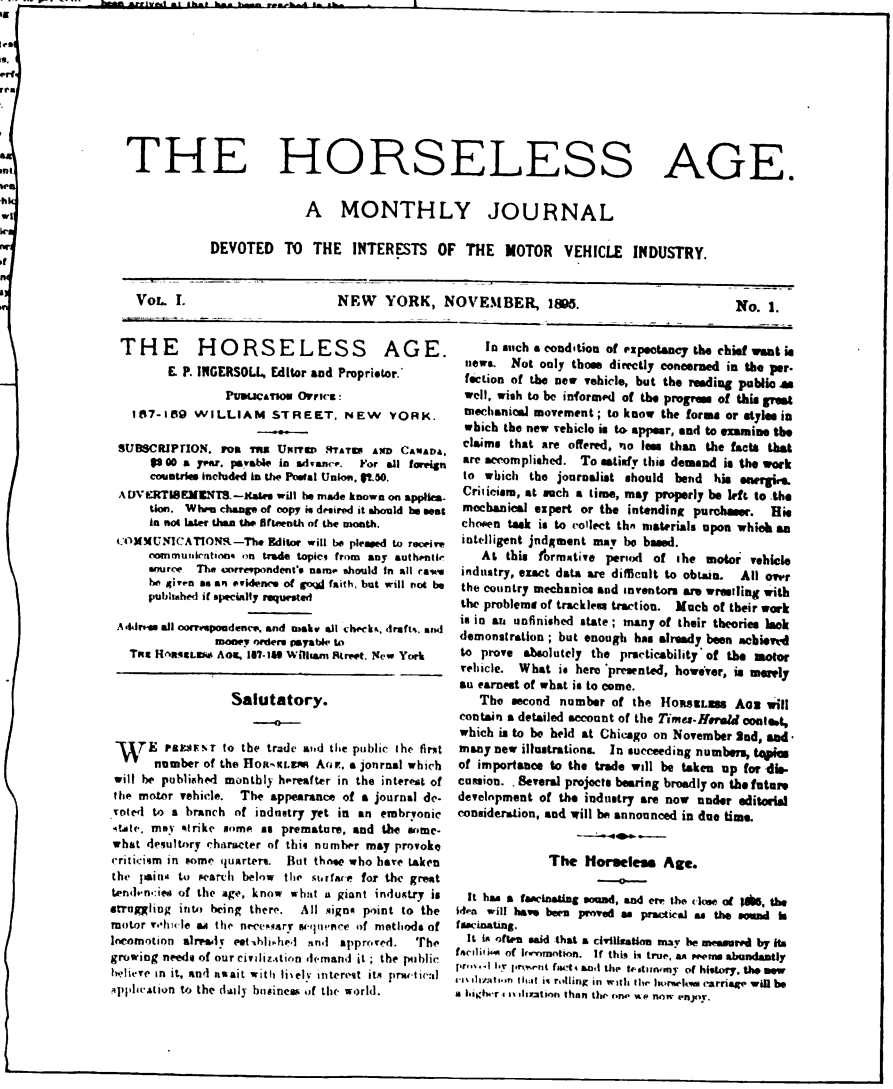
Throughout this entire score of years the aims of The Class Journal Co. have been the same. It years ago staked its fortunes upon the "class paper" idea. It believes that the classes within an industry require separate papers, that no one paper can serve any great industry like a blanket. It does not believe that dealers, jobbers, garagemen, manufacturers, engineers, factory managers and car owners can all be served by one publication.

Therefore it to-day operates papers for three classes: Motor World for the merchandisers—the dealers, jobbers, accessory men, garagemen and salesmen; Motor Age as a great maintenance paper—for dealers, garagemen, accessory men, car owners, etc.; Automotive Industries for the engineering and producing class. How essential this division is the readers of these respective papers know too well to require any explanation. In an age of intensification and specialization no other policy can succeed.

Years ago there was no merchandising paper. When the industry first had its beginnings the mere fact that vehicles ran without horses was sufficient to corral the attention of the whole world. Every interest tended toward developing the power plant, refining the bodies and "finishing" the car itself. Selling was something to which little real attention was given.

Therefore, until recent years but two classes in the industry were served—the maintenance, and the engineering and producing.

Horseless Age began as a monthly in November, 1895, at a time when people had not yet decided even what they should call this new vehicle. The chaotic condition is indicated in the very name of the publication. The idea of the world was negative rather than positive. It thought in



THE HORSELESS AGE.

A MONTHLY JOURNAL

DEVOTED TO THE INTERESTS OF THE MOTOR VEHICLE INDUSTRY.

VOL. I. NEW YORK, NOVEMBER, 1895. No. 1.

THE HORSELESS AGE.
E. P. INGERSOLL, Editor and Proprietor.
PUBLICATION OFFICE:
167-169 WILLIAM STREET, NEW YORK.

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ADVERTISEMENTS.—Rates will be made known on application. When change of copy is desired it should be sent in not later than the fifteenth of the month.

COMMUNICATIONS.—The Editor will be pleased to receive communications on trade topics from any authentic source. The correspondent's name should in all cases be given as an evidence of good faith, but will not be published if specially requested.

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THE HORSELESS AGE, 167-169 William Street, New York.

Salutatory.

WE PRESENT to the trade and the public the first number of the HORSELESS AGE, a journal which will be published monthly hereafter in the interest of the motor vehicle. The appearance of a journal devoted to a branch of industry yet in an embryonic state, may strike some as premature, and the somewhat desultory character of this number may provoke criticism in some quarters. But those who have taken the pains to search below the surface for the great tendencies of the age, know what a giant industry is struggling into being there. All signs point to the motor vehicle as the necessary sequence of methods of locomotion already established and approved. The growing needs of our civilization demand it; the public believe in it, and await with lively interest its practical application to the daily business of the world.

In such a condition of expectancy the chief want is news. Not only those directly concerned in the perfection of the new vehicle, but the reading public as well, wish to be informed of the progress of this great mechanical movement; to know the forms or styles in which the new vehicle is to appear, and to examine the claims that are offered, no less than the facts that are accomplished. To satisfy this demand is the work to which the journalist should bend his energies. Criticism, at such a time, may properly be left to the mechanical expert or the intending purchaser. His chosen task is to collect the materials upon which an intelligent judgment may be based.

At this formative period of the motor vehicle industry, exact data are difficult to obtain. All over the country mechanics and inventors are wrestling with the problems of trackless traction. Much of their work is in an unfinished state; many of their theories lack demonstration; but enough has already been achieved to prove absolutely the practicability of the motor vehicle. What is here presented, however, is merely an earnest of what is to come.

The second number of the HORSELESS AGE will contain a detailed account of the *Times-Herald* contest, which is to be held at Chicago on November 2nd, and many new illustrations. In succeeding numbers, topics of importance to the trade will be taken up for discussion. Several projects bearing broadly on the future development of the industry are now under editorial consideration, and will be announced in due time.

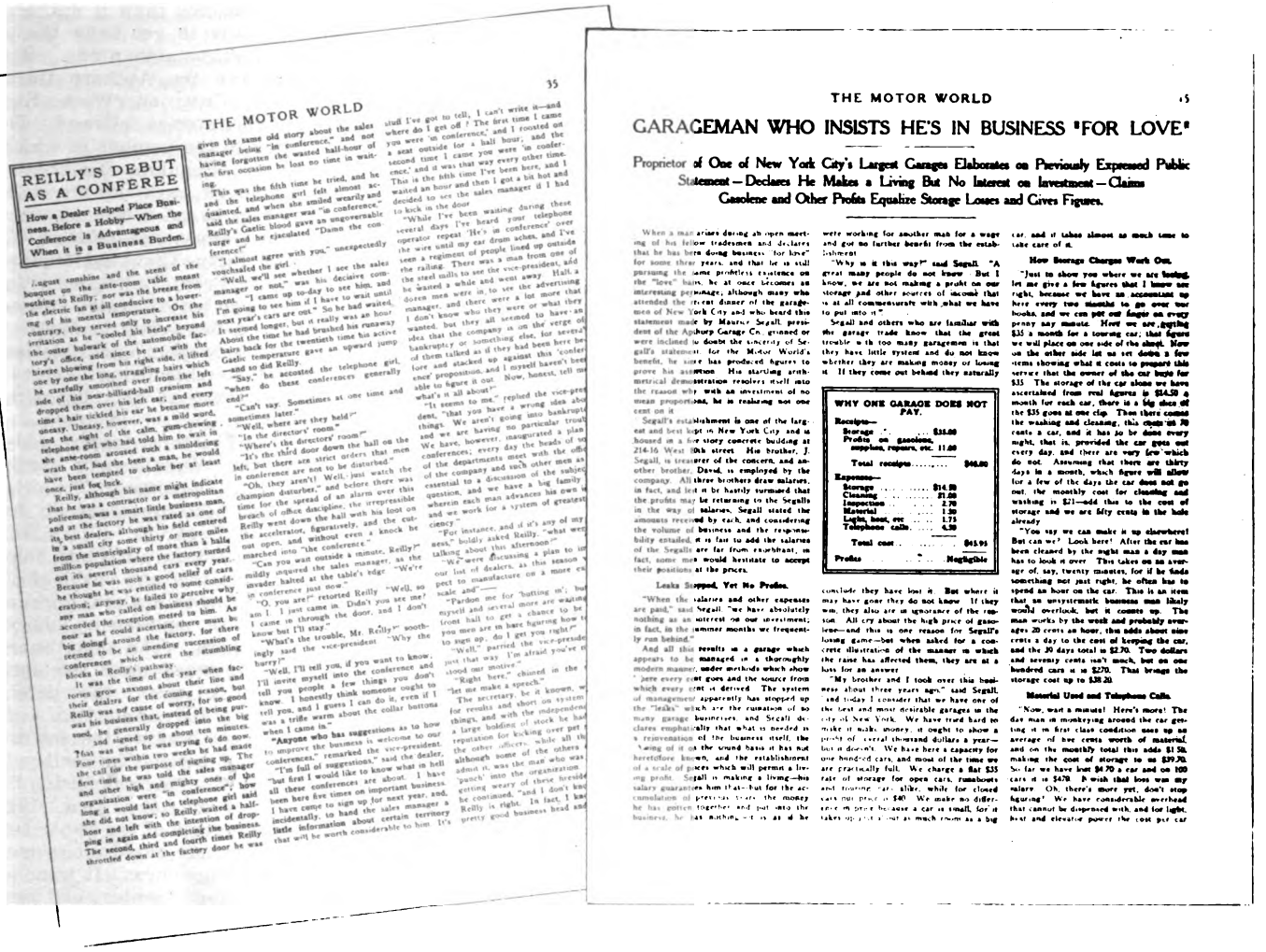
The Horseless Age.

It has a fascinating sound, and ere the close of 1895, the idea will have been proved as practical as the sound is fascinating.

It is often said that a civilization may be measured by its facilities of locomotion. If this is true, as seems abundantly proved by present facts and the testimony of history, the new civilization that is rolling in with the horseless carriage will be a higher civilization than the one we now enjoy.

The aims and ideals of Horseless Age are set forth on the page shown here, which is from the first issue of that publication, November, 1895

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REILLY'S DEBUT AS A CONFEREE

How a Dealer Helped Place Business. Before a Hobby—When the Conference is Advantageous and When it is a Business Burden.

August sunshine and the scent of the bouquet on the ante-room table meant nothing to Reilly; nor was the breeze from the electric fan at all conducive to a lowering of his mental temperature. On the contrary, they served only to increase his irritation as he "cooled his heels" beyond the outer bulwark of the automobile factory's office, and since he sat with the breeze blowing from his right side, it lifted one by one the long, straggling hairs which he carefully smoothed over from the left side of his near-billiard-ball cranium and dropped them over his left ear; and every time a hair tickled his ear he became more uneasy. Uneasy, however, was a mild word, and the sight of the calm, gum-chewing telephone girl who had told him to wait in the ante-room aroused such a smildering wrath that, had she been a man, he would have been tempted to choke her at least once, just for luck.

Reilly, although his name might indicate that he was a contractor or a metropolitan policeman, was a smart little business man, and at the factory he was rated as one of its best dealers, although his field centered in a small city some thirty or more miles from the municipality of more than a half million population where the factory turned out its several thousand cars every year. Because he was such a good seller of cars, he thought he was entitled to some consideration; anyway, he failed to perceive why any man who called on business should be accorded the reception meted to him. As near as he could ascertain, there must be a big doings around the factory, for there seemed to be an unending succession of conferences which were the stumbling blocks to Reilly's pathway.

It was the time of the year when factories grow anxious about their line and their dealers for the coming season, but Reilly was not cause of worry, for so good was his business that, instead of being purged, he was generally dropped into the big "dos" and signed up in about ten minutes. That was what he was trying to do now. Four times within two weeks he had made the call for the purpose of signing up. The first time he was told the sales manager and other high and mighty ones of the organization were "in conference"; how long it would last the telephone girl said she did not know; so Reilly waited a half-hour and left with the intention of dropping in again and completing the business. The second, third and fourth times Reilly throttled down at the factory door he was given the same old story about the sales manager being "in conference," and not having forgotten the wasted half-hour of the first occasion he lost no time in waiting.

This was the fifth time he tried, and he and the telephone girl felt almost acquainted, and when she smiled wearily and said the sales manager was "in conference," Reilly's Gaelic blood gave an ungovernable surge and he ejaculated "Damn the conference!"

"I almost agree with you," unexpectedly vouchsafed the girl.

"Well, we'll see whether I see the sales manager or not," was his decisive comment. "I came up to-day to see him, and I'm going to see him if I have to wait until next year's cars are out." So he had waited. It seemed longer, but it really was an hour. About the time he had brushed his active hairs back for the twentieth time his active Gaelic temperature gave an upward jump —and to did Reilly.

"Say," he accosted the telephone girl, "when do these conferences generally end?"

"Can't say. Sometimes at one time and sometimes later."

"Well, where are they held?"

"In the directors' room."

"Where's the directors' room?"

"It's the third door down the hall on the left, but there are strict orders that men in conference are not to be disturbed."

"Oh, they aren't? Well, just watch the champion disturber," and before there was time for the spread of an alarm over this breach of office discipline, the irrepressible Reilly went down the hall with his loot on the accelerator, figuratively, and the conference room door, and without even a knock he burst open, and without even a knock he marched into "the conference."

"Can you wait outside a minute, Reilly?" mildly inquired the sales manager, as the invader halted at the table's edge.

"We're in conference just now."

"O, you are?" retorted Reilly. "Well, so am I. I just came in. Didn't you see me? I came in through the door, and I don't know but I'll stay."

"What's the trouble, Mr. Reilly?" soothingly said the vice-president. "Why the hurry?"

"Well, I'll tell you, if you want to know, I'll invite myself into the conference and tell you people a few things you don't know. I honestly think someone ought to tell you, and I guess I can do it, even if I was a trifle warm about the collar buttons when I came in."

"Anyone who has suggestions as to how to improve the business is welcome to our conferences," remarked the vice-president.

"I'm full of suggestions," said the dealer, "but first I would like to know what in hell all these conferences are about. I have been here five times on important business. I have come to sign up for next year, and, incidentally, to hand the sales manager a little information about certain territory that will be worth considerable to him. It's stuff I've got to tell, I can't write it—and where do I get off? The first time I came you were in conference, and I roosted on a seat outside for a half hour; and the second time I came you were in conference, and it was that way every other time. This is the fifth time I've been here, and I waited an hour and then I got a bit hot and decided to see the sales manager if I had to kick in the door.

"While I've been waiting during these several days I've heard your telephone operator repeat 'He's in conference' over the wire until my ear drum aches, and I've seen a regiment of people lined up outside the railing. There was a man from one of the steel mills to see the vice-president, and he waited a while and went away. Half a dozen more were in to see the advertising manager, and there were a lot more that I don't know who they were or what they wanted, but they all seemed to have an idea that the company is on the verge of failure and stacked up against this 'conference' proposition, and I myself haven't been able to figure it out. Now, honest, tell me what's it all about?"

"It seems to me," replied the vice-president, "that you have a wrong idea about things. We aren't going into bankruptcy. We have, however, every day the heads of the conference with the heads of the departments meet with the other men of the company and with the discussion of the subject essential to a decision of the question, and we have a big family wherein each man advances his own ideas and we work for a system of greatest efficiency.

"For instance, and if it's any of my business," boldly asked Reilly, "what were you talking about this afternoon?"

"We were discussing a plan to interest our dealers, as this season we expect to manufacture on a more extensive scale and——"

"Pardon me for 'butting in'; but myself and several more are waiting front hall to get a chance to buy you men an hour figuring how to to sign up, do I get you right?"

"Well," parried the vice-president, "I'm afraid you've got the right idea, that way. I'm afraid you've stood our motive."

"Right here," chimed in the "let me make a speech."

The secretary, be it known, was for results and short sessions, and for things, and was for independent a larger holding of stock he had reinvestment of the business itself, the "saving of it on the sound basis it has not heretofore known, and the establishment of a scale of prices which will permit a living profit. Segall is making a living—his salary guarantees him that—but for the accumulation of previous years the money he has gotten together and put into the business, he has nothing—it is all in the

THE MOTOR WORLD 15

GARAGEMAN WHO INSISTS HE'S IN BUSINESS "FOR LOVE"

Proprietor of One of New York City's Largest Garages Elaborates on Previously Expressed Public Statement—Declares He Makes a Living But No Interest on Investment—Claims Gasolene and Other Profits Equalize Storage Losses and Gives Figures.

When a man arises during an open meeting of his fellow tradesmen and declares that he has been doing business "for love" for some three years, and that he is still pursuing the same profitless existence on the "love" basis, he at once becomes an interesting personage, although many who attended the recent dinner of the garagemen of New York City and who heard this statement made by Maurice Segall, president of the Ashburp Garage Co. grinned or were inclined to doubt the sincerity of Segall's statement for the Motor World's benefit, he sure has produced figures to prove his assertion. His startling arithmetical demonstration resolves itself into the reason why with an investment of no mean proportions, he is realizing not one cent on it.

Segall's establishment is one of the largest and best kept in New York City and is housed in a five story concrete building at 214-16 West 10th street. His brother, J. Segall, is treasurer of the concern, and another brother, David, is employed by the company. All three brothers draw salaries, in fact, and lest it be hastily surmised that the profits may be returning to the Segalls in the way of salaries, Segall stated the amounts received by each, and considering the volume of business and the responsibility entailed, it is fair to add the salaries of the Segalls are far from exorbitant, in fact, some men would hesitate to accept their positions at the prices.

Leaks Stopped, Yet No Profits.

"When the salaries and other expenses are paid," said Segall, "we have absolutely nothing as an interest on our investment; in fact, in the summer months we frequently run behind."

And all this results in a garage which appears to be managed in a thoroughly modern manner, under methods which show "here every cent goes and the source from which every cent is derived. The system of management apparently has stopped up the "leaks" which are the ruination of so many garage businesses and Segall declares emphatically that what is needed is a rejuvenation of the business itself, the

WHY ONE GARAGE DOES NOT PAY.

Receipts—	
Storage	$35.00
Profits on gasolines, supplies, repairs, etc.	11.00
Total receipts	$46.00
Expenses—	
Storage	$14.28
Cleaning	01.20
Inspection	2.70
Material	1.20
Lights, heat, etc.	1.75
Telephone calls	4.30
Total cost	$45.93
Profits	Negligible

were working for another man for a wage and got no further benefit from the establishment.

"Why is it this way?" said Segall. "A great many people do not know. But I know, we are not making a profit on our storage and other sources of income that is at all commensurate with what we have to put into it."

Segall and others who are familiar with the garage trade know that the great trouble with too many garagemen is that they have little system and do not know whether they are making money or losing it. If they come out behind they naturally conclude they have lost it. But where it may have gone they do not know. If they win, they also are in ignorance of the reason. All cry about the high price of gasolene—and this is one reason for Segall's losing game—but when asked for a concrete illustration of the manner in which the raise has affected them, they are at a loss for an answer.

"My brother and I took over this business about three years ago," said Segall, "and today I consider that we have one of the best and most desirable garages in the city of New York. We have tried hard to make it make money, it ought to show a profit of several thousand dollars a year—but it doesn't. We have here a capacity for one hundred cars, and most of the time we are practically full. We charge a flat $35 rate of storage for open cars, runabouts and touring cars alike, while for closed cars our price is $40. We make no difference in price because a car is small, for it takes up just as much room as a big car, and it takes almost as much time to take care of it.

How Storage Charges Work Out.

"Just to show you where we are losing, let me give a few figures that I know are right, because we have an accountant to here every two months to go over our books, and we can put our finger on every penny any minute. Here we are getting $35 a month for a touring car; that figure we will place on one side of the sheet. Now on the other side let us set down a few items showing what it costs to prepare this service that the owner of the car begin for $35. The storage of the car alone we have ascertained from real figures is $14.28 a month for each car, there is a big shop all the $35 goes at one clip. Then there comes the washing and cleaning, this costs us 30 cents a car, and it has to be done every night, that is, provided the car goes out every day, and there are very few which do not. Assuming that there are thirty days in a month, which figure will allow for a few of the days the car does not go out, the monthly cost for cleaning and washing is $21—add that to the cost of storage and we are fifty cents in the hole already.

"You say we can make it up elsewhere! But can we? Look here! After the car has been cleaned by the night man a day man has to look it over. This takes on an average of, say, twenty minutes, for if he finds something not just right, he often has to spend an hour on the car. This is an item that an unsystematic business man likely would overlook, but it counts up. The man works by the week and probably averages 20 cents an hour, this adds about nine cents a day to the cost of keeping the car, and the 30 days total is $2.70. Two dollars and seventy cents isn't much, but on one hundred cars it is $270. That brings the storage cost up to $38.20.

Material Used and Telephone Calls.

"Now, wait a minute! Here's more! The day man in monkeying around the car getting it on first class condition uses up an average of two cents worth of material, and on the monthly total this adds $1.50, making the cost of storage to us $39.70. So far we have lost $4.70 a car and on 100 cars it is $470. Pshaw that loss was my salary. Oh, there's more yet, don't stop figuring! We have considerable overhead that cannot be dispensed with, and for light, heat and elevator power the cost per car

The first Reilly story appeared in MOTOR WORLD *Aug. 8, 1912, when Reilly took up the question of organization conferences. This was the first step by* MOTOR WORLD *toward its present intensive merchandising form. Its second step was a story on a garageman's business, shown on the right, which appeared Sept. 19, 1912.*

terms of "less horses" and so called the vehicles "horseless carriages." It could not decide on a term that was not linked up with the horse.

The early pages of Horseless Age are filled with discussions as to what the new vehicle should be called. It was contended that "motor car" might do for a processional vehicle but never for anything else. Those who drove the cars were to be called "motormen." The word "chauffeur" was as yet unknown.

Engineers contended as to the power of the future. They favored gasoline, electricity, spring motors, acetylene, steam and almost everything else.

A glance at the early pages of Horseless Age seems like a glimpse into a dreamland. There are types of vehicles that present-day men have never seen or suspected as having existed. Moving films of the early days of this industry would pack any movie house to the doors.

Wherefore the earliest papers catered only to engineering and maintenance, and Horseless Age became one of the greatest in this line. It succeeded so well that in March, 1899, it became a weekly, and continued as such until recent years, when it became a semi-monthly.

It delved deeply into the fundamentals underlying this engineering field, which was so new that gasoline education had to be secured with a note-book and a traveling bag. There were no schools that taught about the automobile. The automobile engineers of those days had to build themselves with their own hands in a field whose atmosphere was foggy and shifting, with winds blowing this way and that and a feeling of permanency lacking.

And these early-day editors had to be engineers. They had to study hard. They had to be keen analysts and observers. They had to maintain equilibrium and balance in the midst of instability and freak ideas.

All of this is exemplified no better than in the early pages of Horseless Age. Despite all the turmoil of ideas and so-called engineering the paper aimed true and straight for the industry of to-day. It became a big factor in the industry.

Horseless Age continued as a great engineering and maintenance publication. It printed engineering stories that could not be found in text books. It disclosed maintenance and repair methods that were as Greek to the early tradesmen, many of whom went by guess and some of whom guessed right and are with us to-day.

And then, as the industry began to develop, H. M. Swetland and his brother, A. B. Swetland, realized the possibilities and needs of the field and formed The Class Journal Co., which has operated with the same aims along an unbroken line until to-day. It began with the Motor Review. Later The Automobile was acquired and the two were merged as The Automobile, which to-day is Automotive Industries. At various times it added to its business structure by acquiring such publications as Motor Vehicle Review, Dealer & Repairer, New Centaur, Motor Age, Motor Life, Motor Field, Light Car, Southern Garageman, Southern Motoring, Motor World and now the Horseless Age.

When any of the acquired papers served a class it was continued as a class paper. Others were merged with the papers in the class they most nearly covered, which leaves Motor World, Motor Age and Automotive Industries as the dominating "big three" of the automotive field.

Motor World, which also is a pioneer in automobile publishing, made its appearance five years after the birth of Horseless Age. The first issue was dated Oct. 4, 1900. It has always been published weekly. Something of the aims and objects which have permeated the whole existence of this publication are disclosed in the announcement of the

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publisher in his first issue when he said: "Motor World harbors no pet hobbies. It believes in progress, improvement and development. Steam, electricity, gasoline and whatever else may be the motive power, and whatever may be the means of applying it, has each its sphere, and each is too full of possibilities for a normal man to set up himself as the limit of knowledge.

"Its editors and publishers are no strangers to journalism. It will be their effort to publish a journal that will be a credit to themselves and to the world within the world that it stands for—a journal that will be free, fair, readable and newsy, and one that will be *steered as far from the rut as efforts can make it.*

"If success is won by deserving it, Motor World pledges itself to leave nothing undone to prove itself deserving."

This motive has been that of the paper since its first issue, and nothing that could be said to-day expresses better the course that Motor World has followed and is pursuing. It has departed from "the rut" in taking the lead in merchandising and business practices.

Until a few years ago there was no merchandising paper. This portion of the field was being neglected, and in order to cover it Motor World was assigned to the duty of representing and promoting merchandising interests.

When Motor World first began its career it became a trade newspaper, and portrayed from week to week the activities of the growing industry. It was considered a leader in the publishing of automobile news, and its coming was watched for by the trade—from men in repairshops to the heads of the largest corporations in the business.

And so Horseless Age and Motor World paralleled each other's efforts, the one covering the engineering and maintenance end of the field, and Motor World reporting the progress of the growing industry.

Motor World of course included in its publication of news the annual technical descriptions of cars, and the descriptions of all accessories and devices that were introduced as allied products of the industry. It also covered races completely. It was read extensively by dealers, and was considered a great dealer paper. The dealers' interests were always kept in view, but it did not go so far as to intensify its field and become a merchandising paper until recent years.

About 1912 Motor World set out as a pioneer to develop the idea of merchandising and business management among automobile dealers, garage operators, jobbers, etc., and devoted considerable study and space to business methods and to automobile and accessory salesmanship.

In the summer of 1912 the "Reilly" stories made their first appearance. The first Reilly story—or rather a story of that character—was in Motor World of June 6, 1912, although the name of the character had not yet been made "Reilly." The second story of this character was in the June 13 issue. The third story was in the issue of July 18. The fourth was in the issue of July 25.

They had appeared more or less irregularly up to this time, but in the issue of Aug. 8, 1912 the character "Reilly" was introduced in a discussion of the question of office conferences, and with very few omissions the stories have appeared weekly during the succeeding six years, a total of nearly 300 "Reilly" stories. These stories were the beginning of Motor World as dealers know it to-day. It was the first systematic attention to merchandising and business methods.



4 THE HORSELESS AGE.

Automobile Club of Great Britain.

The Winton 1898 Model.

The picture at the top of this page from an early issue of The Horseless Age is a Duryea model of 1898. *The lower picture is the first Winton sold and its sale, according to the records, was the first one made in the automobile industry. The car was sold by Thomas Henderson of the Winton company to Robert Allison of Port Carbon, Pa., and was paid for and shipped April* 1, 1898. *The advertising manager of the Winton company at that time was Charles B. Shanks, who is now manager of* MOTOR WORLD

About a month later, in September, 1912, Motor World began to accumulate and print stories relating to the business establishments and methods of dealers and garage operators. The first story was concerning the business of Maurice Segal, who told why his business didn't make more money than it did, and how difficult it was to get from the garage business a reasonable profit. Segal at that time ran the Apthorp Garage in New York City, on West Eightieth Street. Other stories followed. The second related to the manner in which Glen Tisdale, the Franklin dealer in New York, arranged cars on his salesroom floor in order to get a certain effect.

The third story was entitled "Transforming a Fifty Thousand Dollar Loss Into a Snug Profit," and this title typifies the character of dealer stories that were carried thereafter in Motor World from week to week. These stories were the second merchandising feature when the development of this big new idea was begun.

The third feature added was the "Wide-Awake Merchandising Department," which made its first appearance in the issue of Sept. 19, 1912. This department contained sales, advertising and business hints of value to dealers, garage operators, salesmen, jobbers and others. The department was continued until the spring of 1916, when the department was discontinued as a department because the entire paper had become in reality "Wide-Awake Merchandising."

From the year 1912 the progress of the paper began to be more rapid along merchandising lines. It conducted a used-car contest and went into other trade problems.

One of the big feature movements on the part of Motor World was the establishment of its Before Shows Issue. It was realized that dealers want to know what is doing in the industry before they go to the New York and Chicago shows, and that it is inefficient to withhold information about the shows until after they have returned home. What the dealer wants to know is what is going to be at the show so he can study the information and go to the show in search of certain specific things. Wherefore Motor World set a precedent for all publishers Dec. 26, 1912, when it issued its first Before Shows Issue, analyzing the industry completely, and telling dealers what they would find when they got to the New York and Chicago shows.

In the summer of 1913 Motor World conducted a contest on "My Best Sale; How It Was Made," which developed interesting stories on salesmanship and how difficult sales were consummated. About this same time a series was conducted on "How the Manufacturer Can Help the Dealer." This incorporated comments by dealers, the relations between the factories and the men who sold the cars.

But the real big development of the merchandising idea began March 1, 1914, when Motor World, which had been

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operated as a separate paper by A. B. Swetland, brother of H. M. Swetland, president of The Class Journal Co., was purchased by the latter corporation and became one of The Class Journal papers.

After that the merchandising idea was developed in a typical Class Journal manner. Research was begun to determine what were the needs of dealers, and the paper was revamped in many respects in order that it might better serve its reading clientele.

One of the first departments introduced was entitled "Advanced Maintenance," and had to do with the scientific handling of repairshop jobs.

Realizing that legal problems often embarrass dealers, the present legal department was introduced, and since March, 1914, has continuously handled problems of law relating to the trade. Analytical stories on business conditions throughout the United States were gathered and printed.

For the first time in the history of trade publications a show was "covered" from a merchandising standpoint. Under the new Motor World methods the Boston show was analyzed on an advertising and salesmanship basis. This story compared the good and bad methods of dealers at the shows, pointing out how show displays should be arranged and should not be arranged, how a salesman should operate in a show exhibit, how show work should be planned, and went thoroughly into all those other features that are of business interest and value to the dealer who is spending money for show space.

Since that date Motor World has enlarged this work greatly. As a result of its efforts in the winter of 1915, the show methods in hundreds of cities have been entirely revamped. Displays are better, great efficiency is secured by dealers, and the financial benefits to the readers of Motor World are beyond estimate.

One of the most progressive steps by any paper in the trade was taken in the winter of 1915, when Motor World adopted the practice of sending its editorial men out on the road, traveling from town to town, calling on dealers and garagemen, and finding out what their business problems are, what their good and bad methods are, and in that way getting close to the trade and its problems and making itself better able to serve its readers. Since that date Motor World representatives have traveled thousands of miles and have spent months on the road. *There is hardly a time throughout the year when some editorial representative of the paper is not absent from the office on outside work of some kind.*

The organization is always kept close to association work. Representatives of the paper are often in consultation with the engineers of factories months before new models are put on the market. In this way the publication has been able to be in advance of the trade in methods and practices, and has become a leader and a teacher, rather than a mere reporter of news.

Statistical departments were another development. It was realized that dealers want to know the statistics of all the cars on the market from week to week. One of the first features of this kind was the "Motor World Guide," which has since then expanded until it appears monthly in complete form, taking 15 or 20 pages, and covering cars, trucks, tires and other things.


MOTOR WORLD

DIRT vs. $'S

The Dirt vs. $'s Campaign was one of the most effective enterprises ever undertaken by MOTOR WORLD *and made thousands for many of its readers in showing them how to clean up their place of business and make money out of the sale of accessories*

Marking a step in trade journalism, and proving a sensation throughout the trade, Motor World, April 28, 1915, began its now famous campaign entitled "Dirt vs. $'s." This aimed strong shafts at the methods of dealers and garagemen whose places are not clean, and who are not developing the retail sale of accessories to its possibilities. This campaign was conducted in energetic form for several weeks. Since then it has been continued as one of the standard lines of progress of Motor World, and always will be continued until—if that day ever should come—there is no longer a need for it.

Campaigns were aimed at the mail order houses, and methods were suggested to dealers for meeting the competition of the mail order house, especially in Western territory.

But one of the biggest benefits Motor World ever gave to the motor trade was its Winter Business work. A special Winter Business Number appeared for the first time Oct. 11, 1916. Following this number Oct. 11, the Winter Business idea was pushed in a two-page department for twenty weeks during that winter. Last fall the second Winter Business Number appeared, and the Winter Business idea was again followed up energetically throughout the winter. The Winter Business idea is now familiar to every one.

Complementing the Winter Business Number, Motor World published also a Summer Merchandising Number, which appears at the beginning of the summer season and is filled with ideas and suggestions that make money for its readers during the summer months.

There is no phase of dealer activity that hasn't been covered in Motor World from the service department to the office of the business manager out front.

In order to cut costs and produce greater speed in service work, the Department of Better Mechanics was added. This told step by step how certain difficult repair jobs were made. The Repairshop Shortcuts, which consists of two pages of illustrated and simply described shortcuts to efficiency in repair work, has proved valuable. A window display service was operated. A department is conducted wherein readers may express their own opinions.

Opened Washington Office

Since the war started The Class Journal Co. has opened an office in Washington, D. C., and maintains a representative there at all times in order that readers of Motor World and the other Class Journal papers may be kept in closer touch with developments in the national capital at this critical business period.

About two years ago The Horseless Age also began to concentrate on the merchandising idea and changed its editorial make-up until it was operating in practically the same field as Motor World. Both papers were aiming at the same object and were pursuing approximately the same methods. Therefore, The Class Journal Co., when the opportunity offered, added The Horseless Age to itself in order that it might go forward in a still larger way to continue the development of the merchandising and better business idea.

This combination of the most advanced ideas of the present day, and the most remote history of early days in the industry, finds The Class Journal Co. and its publications more strongly intrenched than ever. Greater plans for the future are in prospect. Just as the trade has watched from week to week the new things that have appeared in Motor World, so it may expect to find in succeeding weeks other new things and other ideas and methods that will serve to help the trade more profitably to merchandise the automotive products and become more progressive.

Underlying it all remains the fundamental Class Journal idea, which is that no paper can succeed unless it also serves. On that basis Motor World has been built until it is

"More Than a Trade Paper—
An Institution of Service."

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Drive-away Bureau

ASK FOR INFORMATION—AND—GIVE US INFORMATION

THIS department will be continued indefinitely. Its aim is to provide a clearing house for information as to routes, road conditions, hotel rates, garage rates, unfair conditions, new routes, etc. Motor World will make an effort to get any information you desire. In return, all dealers are requested to forward promptly any information they have regarding drive-aways. Send your information so it will reach New York not later than Monday of each week.

Here Is a Good Plan from W. A. Rutz

EDITOR Motor World: In reference to your drive-away page in Motor World, I have read some of the letters with considerable interest. We, of course, have to drive all our Buicks, and as I have told you in previous correspondence, Peerless and White either drive or get their cars by express to New York so that we get New York delivery on them.

In reference to driving, as long as it is a necessity we are going at it as systematically as possible and with good grace.

We have hired one man whose duty it is to drive or have charge of driving all cars from the factory. When we have three or more cars, we send one good mechanic from the shop to take care of minor adjustments that are occasionally necessary.

Rules for Drivers

The man in charge, the captain, works under strict rules as to maintenance of sensible speed, observation of road rules, etc., and each driver signs an agreement, copy of which is attached and which seems to have a good effect upon their behavior. We are also attaching a copy of instructions given to the captain.

Oil in Gasoline

In our opinion cars that are driven over the road the way we do it are much better cars to deliver to our customers than those that come by freight. In the first place, we put a quart of cylinder oil with every 5 gal. of gasoline the first few hundred miles. Then for the first few hours a speed of 20 miles an hour is maintained, and thereafter they never go over 30 miles an hour.

At the Finish

When the cars reach here we clean the carbon, touch up the valves, take out all rattles and squeaks, put fresh oil in the crankcase, and from our experience to date we see very little of these cars after they are delivered to our customers, whereas when we deliver a car which has arrived by freight we usually have it in every few days for the first five or six hundred miles to have the little things taken care of that we take care of on the driving and after the car arrives here.

Very few people that we sell cars to say anything to us as to whether the cars have come by freight or whether they have been driven, and when the question is brought up it is a very easy matter to convince them that cars that have been driven are much superior and easily worth the extra money we have to pay.

We are charging $100 for transportation on Buicks, which just about covers the driving expenses and tuning up before the car is delivered.

So far we have brought all but three cars through without a scratch. We had one bent fender on one, one broken windshield on another and one smashed rear wheel on the third. For a matter of about $2 or so we covered them for collision insurance when en route, and we think it is very well worth while because if we ever have a real smash-up we will be ahead of the game.

Trusting some of your readers may find the foregoing of value, that is, if you consider it worth publishing, I am yours truly, The White Motors Co., New Haven, Conn., W. A. Rutz, General Manager.

Rutz's Driving Orders

I (name of driver) do hereby agree to serve The White Motors Co. in the capacity of automobile driver from Flint, Mich., or any other given point to destination as specified by said company's representative. I further agree:

1—To obey all orders or requests from the captain, Mr. John H. Law, or any other captain who is in charge.

2—I am willing to be up bright and early in the morning at whatever time the captain says, and be ready to start with the rest of the crew. I will be willing to do my share of the greasing, oiling, etc., at night when I get in and before I get cleaned up and eat my evening meal.

3—To obey all speed laws or traffic regulations, and promise that at no time will I exceed a speed of 30 miles an hour, and will only travel at this rate after the car is thoroughly limbered up and when the roads are good; otherwise my speed limit will be 25 miles an hour. These limits are only to be reached when within the speed law and the condition of the roads warrant it. I will be particularly careful to observe speed laws and traffic regulations when driving through villages and towns.

4—I promise to keep in my respective position as assigned to me by the captain when driving, and to keep 100 ft. distant from the car in front of me. Should my car be disabled I will signal the horn three distinct times, in which case all drivers should stop. I promise that at no time will I separate from the rest of the crew that I was sent with, unless authorized by the captain to do so.

5—I promise to look presentable and to act in a gentlemanly manner at all times when in hotels, restaurants and trains. I will also make as little noise as possible when going through towns, and be particularly careful not to annoy anyone when blowing the horn.

6—I promise not to run with the cut-out open. I will also see that the tires are inflated not too hard at all times and will not run my car unless both the foot and emergency brakes are in proper working order. I will not put the top down nor will I lower the side curtains unless authorized by the captain to do

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so. If I am allowed to put the side curtains down on account of rain, I promise to get them up as soon as possible when it has stopped. In addition to taking the best of care of the car, I will also bring in complete all tools, accessories or any other material that is given to me for that purpose. I will not make any marks or impression on the top, body, or any other part of the car. I promise to be of whatever assistance I can to the rest of the men of the crew in helping them bring the cars in as nearly brand new automobiles as possible.

7—Should I be arrested for violating any of the state, city or county laws, I agree to pay the fine wherever same is imposed, and where there is an alternative of serving the time I will not do so. If I have no means of making settlement I will agree to let the captain do so, and that the amount involved will be deducted from my salary.

8—I promise again to obey all orders issued by the captain, and should my services not prove satisfactory the said company's representative has permission to discharge me on the road and pay me my salary up to that time. Said company is not obliged to pay me any further compensation, or to pay any of my traveling expenses after I have been discharged.

9—In consideration of the above I am to receive $3 per day and my necessary traveling expenses, and hereto attach my signature in acceptance thereof.

Signed (Driver's signature).

Instructions to Rutz's Drive-away Captain

1—All accidents, whether personal or property, must be reported. Wherever a slight accident occurs and does not warrant reporting same to the insurance company from this office, always get a release signed by the person affected.

2—Whenever a car is disabled and cannot be brought in on its own power, tow it if is safe to do so. If it is more than a few days' run from New Haven get the necessary work done at the first Buick repairshop that can take care of it that you strike. Don't leave any cars on the road or in storage anywhere unless it is absolutely necessary.

3—When cars are left for the night you should see that all cars are locked and retain the keys. Cars should not be left unguarded at any time during the day unless the switch is locked.

4—Caution your men not to take any chances and impress upon them to give any other vehicle the right of way at all times. This is the safest way.

5—Speed laws of the various states should be strictly observed. In the first place these new cars should not be driven over 30 miles an hour for the good of the car, and in the second place, if you hold to 30 miles accidents are frequently avoided that happen when going over 30.

6—If it is necessary to leave a car which is disabled, see that it is stored with responsible parties and get a receipt for it. Make a note of the parts which need replacing and see that it is as complete as possible. This will enable us to get the parts to the car within the least possible time and also a man to make the necessary repairs.

Here's a Free Driver

Editor Drive-away Bureau, Motor World: In connection with your "Drive-away Bureau" I will be glad to get in touch with one of your readers who anticipates making a drive-away from Detroit or Flint or other plant to a point *west* about June 10-20.

Am going to 'Frisco to bring back a car that is there in storage, and will be glad to "Hooverize" expense going out by driving part way—the further the better.

Have had 17 years' experience, can furnish references and drive all types of cars.—Yours very truly, River Road Garage, W. Andreas, Prop., Teaneck, N. J.

Want Some Women Drivers?

Editor Drive-away Bureau, Motor World: Your very interesting article in the May 22d issue of Motor World with respect to drive-aways and the fact that you ask for information has attracted our attention, and we are pleased to put before you a plan that is not new and has been tried out with great success in many cities throughout the United States.

Women drivers have proven their claims with regard to caution, carefulness and good understanding of varying road conditions in all drive-aways in which they have participated, and results prove that an equal number of driving miles per day at a speed not to exceed 30 miles per hour has been consistently accomplished by them in all of the drive-aways where women have been employed.

The Women's Motor Vocational and Industrial Corps, with headquarters at 231 West Fiftieth Street, New York City, Mrs. Harper, M.C., directress, has just organized a number of branch drive-away units—one of the many business branches of her corps—and each of these women drivers is a capable, experienced road driver with complete understanding of the conditions under which drive-aways are conducted. The units when engaged by any motor car company that has difficulty in securing men to take care of delivery will make a valuable business asset and publicity feature.

The advantageous points of securing the services of these units of women are these:

No drinking, no smoking, early rising for an early getaway in the morning, a dignity that carries weight wherever the cars are driven, splendid publicity and one-third less expense.

We inclose a picture of one of the units, and shall be glad if you wish to furnish you with the details of some of the experiences already had in this kind of work if you consider the printing of any part of this article or letter in your paper. The picture may be used if you care to give it space or we can furnish a better one if wanted.—Yours truly, Women's Motor Vocational and Industrial Corps, New York City, V. W. Spurgeon, Director.



DRIVERS FROM THE WOMEN'S MOTOR VOCATIONAL AND INDUSTRIAL CORPS—Mrs. M. C. Harper, chief; Lieutenant Geise; Sergeant Carmichael

Wilmington Drive-away

WILMINGTON, DEL., May 31—Wilmington, being situated on the direct railroad line between New York and Washington—Pennsylvania and Baltimore & Ohio—where there is especially heavy government traffic, is handicapped so far as commercial transportation is concerned more than many other cities, and, while some of the dealers are contenting themselves with the extra cost of express shipments, which are proving satisfactory and dependable, most of them are now in the drive-away class.

Some send men all the way to the factories in the Middle West, while some have arrangements whereby they can get what they want from intermediate drive-away points. There are still others that can get their cars from water points, where transportation by boat brings the cars part way. Some are driving in as many as 15 to 20 cars a month, in addition to what they can get by freight.

Among the concerns that are driving in cars either from the factory or intermediate points are: F. B. Norman & Co., Ford; Packard Co.; Guy R. Ford, Overland; French Street Garage, Reo;

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Drive-away Bureau (Continued from Preceding Page)

Cahill & Co., Dodge; Gomery-Schwartz Co., Hudson; Delaware Motor Sales Co., Cadillac; Sweeten-Wilmington Co., Hupmobile; Taylor Motor Car Co., Haynes. —A. O. H. Grier, Motor World representative.

What Drive-aways Have Done

Governors of the different states, who are in all cases at the head of the various State Councils of Defense, will be asked by the National Automobile Chamber of Commerce to request local authorities not to interfere with the overland delivery of new automobiles and motor trucks from the factories to dealers.

The manufacturers and dealers are relieving railroad freight congestion by delivering new cars under their own power instead of shipping them by rail. Thirty-three per cent of the production of eight of the larger automobile manufacturers was delivered over the highways during the first three months this year. The number of machines driven away was 38,900, which relieved the railroads to the extent of about 10,000 freight cars. With a probable production of 1,000,000 motor vehicles this year, the total saving in railroad cars by this method will amount to about 80,000 cars.

Considerable trouble has been caused by local officials, who insist every car in the drive-away "strings" shall carry a state license plate, and sometimes that each driver shall have a state operator's license. Owing to lack of uniformity in the state motor vehicle laws, full compliance with requirements in one state is not held to be sufficient in some of the other states, and much delay, annoyance and additional expense have resulted needlessly.

The N. A. C. C. has taken this matter up with the Director-General of Railroads, with the Secretary of War as chairman of the Council of National Defense, and with the Secretary of Commerce as a member of the Council. It is also preparing a definite plan to offer to the governors whereby motor vehicles in transit may be allowed to proceed to destination without interference over the question of licenses.

When the motor vehicle laws were enacted, no such shipping situation as now exists was foreseen, and no provision was made for delivery of motor cars by highway. The purpose of license plates is to identify the car and its ownership in case of accident or infraction of operating regulations, and where a string of drive-away cars remains together and the cars carrying improvised duplicates of the manufacturer's or dealer's license plate such identification is sufficiently established for this purpose.

Many manufacturers and dealers are urging the enactment by Congress of a Federal license law which will sweep away the lack of uniformity in the state laws that are now interfering with this form of interstate commerce.—National Automobile Chamber of Commerce.

Philadelphia Drive-aways

PHILADELPHIA, May 29—Among the dealers who are driving cars in large numbers from the factories are:

Oldsmobile Co., 231 North Broad Street, Oldsmobile; Peerless Automobile Agency, 2314 Chestnut Street; Paige-Detroit Motor Car Co., 304 North Broad Street; Packard Motor Car Co., 317 North Broad Street; Fanning-Mathis Co.; Marmon Motor Car Agency, Broad and Race Streets; Studebaker Agency, Broad and Callowhill Streets; International Motor Co., Mack, Chestnut, near Twentieth Street; La Roche Bros., 1214 North Broad Street, Velie; Bell Motor Co., 613 North Broad Street, Empire, Davis and McFarlan; McCurdy-Brainard Co., 707 North Broad Street, Jordan; Hupmobile Sales Corporation, 441 North Broad Street; H. P. Baker Motor Co., 918 North Broad Street, Oakland; Thornton-Fuller Auto Co., 2037 Market Street, Dodge; Cadillac Auto Agency, 144 North Broad Street; Buick Motor Co., Broad Motor Co., 669 North Broad Street, and Poplar Streets; Samuel Earley Mercer.

Routes to Philadelphia

Michigan and Ohio Points to Philadelphia with Some Alternate Routes—The favored short route from the various motor car factories in Michigan follows: Starting from Lansing, Flint, Pontiac or Detroit go to Jackson, to Blissfield, turn toward Toledo, skirting city on Cleveland road to save time; thence to Maumee, crossing Maumee River bridge to Perrysburg on direct route to Fremont, Ohio; to Bellevue, to Norwalk, to Elyria, Ohio, first big stopping point en route. Lansing to Elyria is a 12-hour run, starting at 8 a.m. usually and finishing at 8 p.m. Leaving Elyria next morning, follow fine macadam road 25 miles long to Cleveland.

There run out Euclid Avenue to Euclid, turning right at centering corners and turning left on first road to Chagrin Falls, thence taking old Cleveland-Pittsburgh turnpike to Warren, to Youngstown, to Darlington, to Beaver Falls, next big stop. From Beaver Falls run to Pittsburgh, taking Lincoln Highway through Greensburg. McConnellsburg, Chambersburg, Gettysburg, through Lancaster to Philadelphia, a distance of 750 miles from Lansing. Other stops usually made at Chambersburg. Lansing to Philadelphia is a four-day run.

An alternate run is from such Michigan points as Lansing, Jackson and Flint to Toledo, Monroe and Detroit, taking steamer to Buffalo, thence running from Buffalo to Williamsport through Harrisburg to Philadelphia; or from Buffalo to Binghamton to Scranton, or through Wilkes-Barre to Philadelphia, the run from Buffalo to Philadelphia consuming two days. At the start, skirting Toledo, as per first route given, is 50 miles shorter then going through by way of Detroit.

Here is what is known as the "war route," now largely used by truck manufacturers working on government contracts: Detroit to Toledo, to Fremont, to Bellevue, to Norwalk, to Elyria; thence to Cleveland, to Ravenna, to Canfield, to Darlington; thence to Beaver Falls and so on to Philadelphia as per first route mentioned.

Drive-away managers report gasoline along these routs never more than 30 cents a gallon, and some points as low as 22 cents. Garages consistently fair, in no case more than 50 cents a night, the usual charge being exceeded for storage charges.

Farmers in vicinity of Beaver Falls inclined to charge exorbitantly for pulling cars out of mudholes in rainy weather. One flagrant case was where a charge to one dealer whose three cars were thus stranded was a "hold-up" of $25 to get the machines free of the mud.

Hotels along routes usually good and charges always fair, ranging from $2 upward.

Roads out of Michigan into Ohio good in dry weather, but through the valleys land is flat and settling pools of water, seeking soft and lower points, makes bad going and deep ruts. Roads need elevating above mud level in some places en route to Elyria. Fine running from Elyria into Philadelphia, except in winter, when drifts form.—K. H. Lansing, Motor World representative, 1406 North Sixty-second Street, Philadelphia.

Dealers Can Avoid Drive-away Difficulties

DETROIT, May 29—Factories are notifying dealers who participate in drive-aways, and who are frequently stopped by local officials of the insufficient supply of license plates, that they can avoid much of this difficulty by purchasing a number of duplicates and attaching them to each car in the train. These duplicates can be used again on subsequent drive-aways during the year. In a letter to the National Automobile Chamber of Commerce, Francis M. Hugo, Secretary of State of New York, writes:

"The motor vehicle law of this state does not authorize this office either to grant privileges (for running cars through the state under their own power) or to issue any 'in transit' tags. The proper way to do is to get out extra sets of dealers' plates enough to cover all shipments of cars to be used on the cars while going through the state. After the cars are delivered at their destination the plates can be shipped back to the manufacturer and used for the next lot."

Under the reciprocity provisions of the different state laws, these plates will be recognized and the strings of cars permitted to pass through. A fee of $5 is charged for each set of duplicate plates for one car.

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Boston Drive-aways

BOSTON, June 1—The New England motor dealers have solved the problem of getting cars here by their drive-aways, though some of them have had cars come by freight and express recently. Overlands from Toledo, Empires, Coles and Marmons from Indianapolis, Dorts from Flint, Chalmers from Detroit and Oldsmobiles from Lansing came through by train within a couple of weeks.

Others have had to drive over the road. The Mitchell-Lucas Co. sent men to Racine and they reported good roads to Chicago except 10 miles; very good to South Bend; a few poor stretches to Cleveland, and from there through Buffalo, Albany, Springfield to Boston very good.

Dodge cars have been coming regularly over the road, and the drivers report better roads now with the dry weather. They come from Detroit via Cleveland, Buffalo and Albany. The Buicks have been driven to Detroit and then sent by boat to Cleveland and Buffalo; the Studebakers have come all the way through from Detroit, and so have the Cadillacs.

In all cases the machines need merely a little washing and brushing when they get here. None of the companies getting cars over the road report instances of overcharging at garages or hotels along the route. They have made their arrangements for night stops at some of the places recommended by dealers in the same lines as they handle, and in this way are not being held up.—James F. Sullivan, Motor World representative.

St. Louis Drive-aways

ST. LOUIS, June 1—No changes are suggested by drive-away directors in the route given from Detroit to St. Louis in Motor World of May 22.

There is another route from Toledo that some of the leaders like, but even they do not say that it is better than the other. The route given was Detroit to Toledo by the Government truck route —from Toledo through Defiance, Fort Wayne, Alexandria, Anderson, Indianapolis. Here is the other route: Toledo to Bowling Green, Lima, St. Mary's, Celina, Cold Water, Portland, Muncie, Anderson and Indianapolis. George Weber, of the Weber Implement & Automobile Co., is one of those who likes this route. Asked if there were any warnings against it, he said: "The hotels, restaurants and garagemen over the entire route from Detroit are strong for the drive-away parties now. They like our business and they treat us well."

The drivers who have made the trip numerous times say the only complaints heard recently from hotel and restaurant men was this: "I wish you had wired me and I would have had something extra for your boys."

During the last two weeks the weather has been ideal for roads, except as to dust. In the main the country road overseers are showing great zeal in keeping their highways shaped up despite the heavy traffic on some sections. The idea of police protection for cars parked over night appears to be spreading.

Recently work has been started on a brick road south from Effingham, Ill., that will make travel better to Greenville when completed. It is understood that the work is to go on this summer to completion.—Clyde Jennings, Post-Despatch, St. Louis, Motor World representative.

Michigan to Kansas

Editor Motor World: Enclosed under this cover you will find write-up of drive-away from Flint, Mich., to Kansas.—G. H. Schultz, care William Small Co., 112 West North Street, Indianapolis.

In the May 15 issue of the Motor World occurred a very interesting letter from H. S. Collinson of Arkansas City, Kan., regarding drive-aways from Flint, Mich., to his destination in the West.

I have had quite a good deal of experience over the different routes leading out of Flint to points south and west, and will outline the best route and the only one worth while considering in my estimation.

In the first place, endeavor to miss the sandy roads and heavy hills of south Michigan and west Indiana, also straighten out the trail and return your mileage, thereby saving time as well as expense on the trip.

From the main street in Flint go west to the Chevrolet factory, turn south at the little Greek restaurant on the corner, two blocks, then west on the Lansing road, which will prove to be a good hard road and about a 65-mile run. Turn south at Lansing on first business street, go past the State House and near the south part of town you will notice the Reo Motor Co.'s large factory on your left. Continue on south, several blocks further the street develops into a fine drive along the river bank, with a southwest angle, passing the beautiful cemetery on your left, you make Albion your next objective city. You will find a beautiful country, fine roads and numerous well-kept small villages.

The road is not marked, but get your routing at the small towns you pass through.

You will find the people very courteous. Reaching Albion, go south on main street, cross railroad track and inquire at first large garage on east side of street your routing to Quincy, which will be your next large town.

You will find this garage a good one to take on supplies. I have stopped there numerous times, and although a "stranger in a strange land" was treated very courteously with reasonable prices and efficient service.

Your road to Quincy will take you by some beautiful lakes, and if you are a follower of Isaak Walton you will be greatly tempted to stop and enjoy the sport.

Just before you reach Homer there is a bad curve down and around a steep hill, but the road is solid and although there have been some bad accidents at that place you should not worry, for it isn't good policy to be "hitting her up" too fast on a strange road. The road then on to Quincy will be nearly all level. Drive with an angle of west by south.

Quincy has good reasonable hotel and garage service and the proprietors will not take undue advantage of a tourist. I have stayed there over night and speak from experience.

Leave Quincy on the main street, go west about three miles, then turn south and head for Angola, Ind.

You will have only one or two hills with no hard grades, no sand of any consequence and a good hard road past fine farm houses and through a progressive, wealthy, farming and dairying country.

Reaching Angola you will find good restaurant service at several places around the circle and a good garage on the second street south of the circle.

Take Wayne Street leading south from the circle and on through the picturesque little hamlets of Pleasant Lake and Waterloo to Auburn, about a 20-mile drive over a fine macadamized pike. Go south on Main Street to the end of it, then west two blocks, turn south, cross the railroad, then head for Ft. Wayne, about 22 miles, over a fine pike with very few abrupt turns and all places where you would be likely to get off the road, you will find large finger boards pointing the road to Ft. Wayne.

At the edge of the town you will cross a large iron bridge over the river, then on to Burr Street to Main Street, then west to Court House Square.

Ft. Wayne is quite a busy city and accommodations are ample to suit all sized purses. In getting out of this city to Huntington, Ind., your next large town, you will have to be careful or you will get off the route.

From Court House Square go out Main Street to Broadway, then south under the railroad viaduct, follow the Blufton interurban car line, out the Blufton pike about five miles to a school house, then take the right-hand fork road, west by south angle, through Zanesville then nearly west on to Huntington. As soon as you come to the main street leading south turn and cross river bridge, go two squares beyond the bridge, then turn west and follow south across long covered bridge, then on to Mt. Etna, straight through on south by west angle—fine pike on to Marion.

This city has good hotel and garage service and the folks are a very congenial bunch.

Leave Marion out South Washington Street to Kokomo Pike, then west through Swayzee and straight on to Kokomo. From Kokomo leave the Court House Square, go south to where car line turns west, take this pike through Russiaville and on south by west to Frankfort.

You will find this a progressive, hustling town and good accommodations.

From Frankfort take the angle, west

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HIS OLD MAN WAS A DRUNKARD

ISN'T THE JOBBER TO BLAME FOR CONDITIONS IN ACCESSORY RETAIL MERCHANDISING?

A BOY grows up in the slums. He becomes an anaemic dwarf with the morals of a gunman. He fails in school. He fails in the field of business.

All through his youth he is a problem. The police have trouble with him. School teachers can do nothing with him. Nobody can make anything out of him.

And then—one day somebody says: "Oh, he can't help it! His father was a drunkard!"

The lad never got a fair start in life. He rushed the can. He was bred in immorality and the absence of real civilization. Can the boy be held to blame? There are those who say the blame rests upon society—upon you and me.

If the boy makes a medium mark for himself in the world he is entitled to much more credit than another boy who reaches the same mark but didn't have so far to go.

And we find the same set of circumstances in the retail merchandising.

In Other Trades

IF a man wishes to set up in the hardware business, one of the first things he can do is go around through the hardware trade and get ideas as to how a hardware store ought to be run.

If a man wishes to set up in the drug business, he may go around through the drug trade and see the best methods that are employed in the drug business and the best plans for laying out and conducting a store.

The same thing may be done in the drygoods and many other trades.

After all these people have made their investigations in the trades they are about to enter, they will find that they must conform to rather high standards if their establishments are to hold their own in the competition they are to meet.

At the center of a live eastern village is a drug store that compares well with the big city stores. On a side street is another drug store run by a man who has all the earmarks of poor business. But this man nevertheless has a pretty fair looking drug store.

Why?

Because he knows that if he is to amount to anything at all he must come somewhere near the standard of his trade. And to know what this standard is he has only to go down to the corner of Main Street and see how the other operates.

He is not a good drug store man because he is naturally so. If all other stores were poorly run his would be poorer than all the others—but circumstances compel him to be modern.

No Good Examples

But if a man wishing to enter the automobile and accessory retailing business makes such an expedition he does not return from it with as high an idea of trade standards as is secured from visiting older and more substantial trades. *He finds few or no good examples. He has poor neighbors.*

This lack of higher standards—of good environment—is one of the drawbacks in the motor car and accessory business. The purpose of this story is to discuss the accessory end of it, because that is the one feature of the motor car trade that has lagged more than any other during the years that the automobile business has been developing.

The absence of high-grade methods and high-grade stores is one of the things that is lamented by the jobber of accessories. He complains that his goods do not move on to the public in sufficient volume because the dealers are not highly educated along business lines and do not maintain stores that are an attraction to the public. Furthermore, he contends that the dealers do not use aggressive merchandising methods and are passing up many opportunities of selling accessories.

All of these things are true.

There are a few good accessory stores, but there are thousands of accessory stores that can no more compare with hardware and drug stores than the Bowery can compare with Fifth Avenue.

The Jobber's Duty

There is therefore a great opportunity for someone in taking a more aggressive lead in setting up higher standards of "tradesmanship" in the accessory retailing field. *There is an excellent chance here for the accessory jobber to take the lead in the constructive work that he would like to see done.*

Of course, publications have taken up this work and prosecuted it actively for several years, but something in addition to that is needed if the desired progress is to be made. *The backward environment must be removed. New standards must be set up.*

One does not censure the heathen in Africa because he isn't a more intelligent or ethical man, because it is well known that he is in an environment that is not conducive to more rapid development. *He looks about him and sees other savages, wearing no clothes, knowing very little, and making no effort to acquire education or civilization. Therefore if he can acquire a herd of cows and a half dozen wives he becomes a man of influence in his part of the dark continent and is considered a leader in such civilization as his country boasts.*

He is not held to account—*because he has no one to teach him better.*

The operator of a garage may visit all the places in his town and not see anything that is very constructive. He may come back to his own place and find that it compares very favorably with the others. *On the other hand a critical observer may go into this so-called "best place in town" and find that from a merchandising standpoint it is several years behind.* It cannot compare with the few isolated instances of aggressive merchandising that exist in a few of the cities of the country.

Good Standards An Essential

The drug store man, if he makes a circuit of the trade, will find that his store must be neat, that his floor must be clean. He must have counters and

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showcases and shelves. His goods must be neatly arranged on the shelves. He must have scales, wrapping paper, twine, in the summer a soda fountain, uniformed attendants, a pay-station telephone, a department for the sale of stamps, red and green bottles in the window, a good sign over the door, a good display window and a great many other things.

The hardware man will find that he must have a somewhat similar lay-out. The interior of his store must be up-to-date—although, of course, there are very ancient models of merchandise to be found in all trades—but in the hardware and drug trades, for example, the general plane of business is much higher than it is in the garage and accessory fields.

For the ideal merchandising of accessories there should be in every garage an accessory department. *This should include wall shelves, such as are found in hardware and drug stores, showcases of glass, good display windows, a cabinet beside the entrance where all the cars drive in and out of the garage, well-dressed and intelligent clerks, a sales and merchandising system, accounting methods and many other features.*

But the garage and accessory man who goes around the town in his own city looking for the best methods that are employed is quite likely not to find set



before him all of these things which he ought to have if he is going to conduct a business that will net him profits reasonably near the maximum.

The ideal arrangement, of course, would be for the entire trade to move upwards at the same time, so that all of it would reach a higher level at the same time, but this is rather problematical and highly improbable. THE GREAT NEED IS FOR THE CONSTRUCTION IN THE TRADE OF SEVERAL WHAT MIGHT BE CALLED HIGH SPOTS THAT WOULD SERVE AS AN EXAMPLE FOR THOSE WHO ARE OPERATING ON A LOWER MERCHANDISING LEVEL—JUST AS SOCIAL WORKERS OPERATE AMONG THE POOR.

Even greater than the need for these high spots is a systematic campaign for bringing these better examples of merchandising to the attention of those who can profit by them.

How then can this be done?

It is possible for the jobber to do a considerable portion of this work and benefit his business now and during the years that are to come to an unthought of degree.

How can the jobber do this?

He can do it by setting up somewhere in his own place of business, or in the place of business of some good dealer, a model merchandising store.

This would be laid out along the most approved lines for the selling of accessories, and would be operated with the best of methods. The jobber might set up such an establishment in his own place of business and sell accessories at retail, although of course the jobbing trade is to-day trending away from the retailing of accessories rather than toward it.

Use Dealer as Model

As an alternative, a jobber might induce a good dealer in his own city to permit the jobber to work with him in laying out a model accessory store. This store would then always be available as an example to dealers who were customers of the jobbers.

The jobber could bring the dealer customers from his territory in to the home city once in a while, take them around to this model store and show them how it is operated.

There would be available the business records of the store, showing the forms and systems that are used, how profits and losses are watched, how leaks and losses have been corrected, how profits in certain departments have been increased, how slow moving goods have been disposed of, how advertising has been conducted, how the clerks dress and conduct themselves, how car owners are induced to increase their purchases of accessories, and how the whole business has been made to grow and increase and profit by the use of these more modern methods.

If a jobber were able to get 100 customers from his territory into this model store in the course of a year, the ideas that would be disseminated throughout the trade should do a great deal to boost the business of this particular jobber. Furthermore, it should help increase good-will, *which is one of the factors that is getting and requires serious attention at the present day in the accessory trade.*

Teach the Dealer

Having shown the dealer this model store, the jobber might then volunteer to assist this dealer in putting his own place of business on this modern basis. He might go so far as to operate a *garage efficiency department*, as does one Philadelphia jobber, the sole purpose of which is to teach dealers how to run better places of business, how to sell more accessories, how to make more money for themselves, *and at the same time how to increase the business of the jobber.*



Furthermore, every time a dealer is educated along these better lines, and is made a better business man the business of the jobber is not only increased but the securing of it is made much easier—*and the sales cost is decreased.*

How to do this is probably the great problem. Were all jobbers operating retail departments, and were the tendency in the jobbing trade to concentrate on retail business, the jobber's own retail store could be used as the example, but since the tendency is the other way, *the alternative probably is to use the place of business of some dealer.*

Furthermore, the jobber's store would probably be more elaborate, larger and more expensive than anything that the dealer would need in his own business. Therefore, the example, as set up in the jobber's building, would not be true to life and greatest value would not be obtained from it. *What is needed is something that is as nearly as possible like the store that it is expected the dealer will set up for himself.*

Modern business is coming to believe more and more in the theory that a great deal of missionary work must be done, even though it does not yield a money return during the next 6 months, and this educational work comes under that head. One large arms and ammunition company operates a promotion department that is working on the benefits to the company that are expected to come 10 and 15 years from to-day.

All of this will cost money, but there is no reason why a jobber who is making money cannot set aside a certain sum for the operation of such a department and begin at once the education of his customers to buy more goods from him.

What is needed is a greater effort on the part of the dealer, the man who is to pass the goods on to the retail customer, and make 100 *per cent effective the consumer advertising done by the producer.*

The jobber's salesman is the secret of the jobber's success. He can develop untold values if he works along right lines. He can work along right lines—and will gladly do so—if shown the way. *But in order for the jobber to show the way to his own organization in this work the jobber must* FIRST SELL HIMSELF ON THE IDEA.

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Why the

Farm Lighting Manufacturer Needs the Automotive Dealer

The Automotive Dealer is trained in outdoor follow-up selling, he has a sales organization that is ready and waiting, and he will give quickly an element of permanence to a new product

THE farm lighting and power plant is assuming an important rôle in the modernization of the farm and the question uppermost in the minds of the manufacturers of these plants is:

"What kind of dealer shall we use to sell to the farmer?"

There seem to be three possibilities in this direction:

1—*The automobile dealer;*
2—*The specialty salesman;*
3—*The electrical supply store.*

The automobile dealer is the logical man to sell these outfits to the farmer. He is personally acquainted with the farmers in his territory. He has sold them automobiles, trucks, and in thousands of cases, particularly in the West and the Middle West, he has sold them tractors, trailers, farm implements and farm hardware.

Salesman—Not Order-Taker

The automobile dealer is a salesman, not an order-taker. Anybody can go around and take orders, but the sale of automobiles requires salesmanship of the higher kind. Farmers do not come to the dealer's store and say: "I want an automobile." They have to be called on at their farms, taken for demonstrations, their whims catered to and often the whole family has to be "sold" before the farmer will put his name on the dotted line.

The man who has successfully carried on this kind of sales work is the man who can and will sell farm lighting and power plants.

Contrast this method of selling with two alternative methods. A specialty salesman is one who takes up the sale of lighting and power outfits and carries a demonstration plant around with him in an automobile—as does the sewing machine agent. He visits the farmers in the territory allotted to him. He is probably unknown to them.

If he is a man of pleasing personality and convincing manner and can tell his story so that the farmer can understand it he may make sales. If he has this ability to sell goods to people with whom he has had no previous acquaintance and can sell them strange goods at that, he will not stay a specialty salesman long. *He will be something bigger, and the agency will be taken up by another.*

If he has not this ability, he will be a failure among this class of prospects and the farmer will class him with the lightning rod agent. Will farmers be willing to give up from $300 to $800 to this kind of a salesman?

The automobile dealer, on the other hand, has a definite place of business. The fact that his establishment is permanent is in his favor and is really a proof that the goods that he has been selling have been giving satisfaction and are reliable. Otherwise he would not be in business to-day. His customers rely on his judgment and are willing to listen to his sales talks on farm lighting and power outfits.

Electric supply stores have been far from successful in selling this equipment. On first thought, the electric supply store would seem to be a logical place to sell this merchandise, but experience has disproved the theory. *Farm lighting outfits must be sold by men who will go out to visit prospects with a demonstration outfit.*

This the electric supply store cannot and will not do. *Its business is done over the counter. Prospects are drawn to the store by advertising in local papers and direct advertising by mail to former customers. The trade has been among town or city folks whose homes or places of business are already equipped with electricity. They do not know the farmers, they have never had occasion to trade with them because the things they have to sell have no place on the farm unless the farm is supplied with electricity. And, if it is, that farmer is not a prospect for a farm power and lighting system.*

Not Used to Follow-Up

Then again, the electric supply store man is not accustomed to going out to visit prospects. Did one ever hear of an automobile dealer who could sit in his salesroom and wait for business to come to him? If so he's probably dead now in so far as being an automobile dealer is concerned.

The selling of a farm lighting and power outfit to a farmer is only the beginning of a line of sales of bulbs, wire, insulators, loom, switches, fuses, sockets, chandeliers, motors, pumps, electric irons, washing machines, coffee percolators, electric toasters and other devices.

These articles are of such a character that they are more susceptible to sale over the counter and there is no reason why there should not be cooperation between the automobile dealer and the electric supply store in this respect.

Assuredly, the automobile dealer is the man to sell the plants and he can sell more of them than the electric sup-

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ply store could ever hope to sell. But the automobile dealer does not want to stock up with irons, hair curlers and that sort of thing. *This is in the province of the electric store, and this is a part of the trade that can be more satisfactorily taken care of by it.*

It has been stated that the selling of farm lighting and power plants should be an exclusive sales line and not a side line, and that a specialty salesman would devote all his time and energies to the work, while with the automobile dealer the lighting and power plant would be simply a side line.

Dealer Ready and Waiting

Just now, when the possibilities of selling these outfits are greatest, it so happens that the automobile dealer, a trained outside salesman, finds his sales efforts in his own line hampered by the fact that he cannot get enough cars to sell, and a considerable portion of his time can be spent in selling the lighting plants.

While it is true that his entire time may not be devoted to this, the time that he does give will be more productive of results, owing to his acquaintance with his prospects, his superior salesmanship and his knowledge of machinery, engines and electricity.

The lighting plant manufacturer's idea of having a man devote his energies exclusively to the sale of lighting plants is partly a selfish one, and one which if carried out will result in the sales of these outfits by persons who are either unable or unwilling to cultivate the right kind of prospects in the right way.

The income from the sale of lighting plants by itself would be inadequate to keep up an establishment in a territory over which the average agent would travel. *The value of a fixed establishment is too great to be overlooked.* Let the automotive dealer therefore take care of the introduction of the lighting plant which fits in exactly with his other lines and which is to be sold to exactly the same people to whom he is selling other automotive apparatus.

Must Hold Men on Farms

Farm lighting and power outfits are going to play a big part in the betterment of farm conditions and the back-to-the-farm movement. Where is the great army of farm hands that we had not so many years ago? They have gone to the towns and cities and have been transformed into cart drivers, bus boys, soda dispensers and shop clerks. Few rise up through the ranks and stand out above their fellows.

Two things have taken them to the cities—higher wages and better living conditions. The problem now is to keep the men on the farms that are there now and to bring back the men from the cities. *Show them that the high wages in the cities are more than made up for by the higher living expenses. Show them that their savings will be greater on the farm than in the cities, in spite of the fewer number of dollars that they receive on the farm.*

But a far greater task lies in convincing the farm hand that the living conditions are better on the farms than in the cities. He can be told that the air is purer, that the outdoor exercise makes him healthy and strong, but how are the great bugbears of farm life to be hidden—the plowing, the milking, the wood-cutting, the weekly bath in the family wash tub, the pumping of water from the well, the slow drive to town behind "Old Dobbin"? *Can these chores and inconveniences be compared with the conveniences that the city man enjoys—the electric light, the running hot and cold water?* IT CAN'T BE DONE.

Then there is the problem of the retired farmer. In many cases when a farmer thinks that he has made enough money to live on for the rest of his life, or when he gets tired of the farm and hands it over to those who come after him, he decides to move to the county seat or to some large town, or to a city.

Our most efficient farmers are those who have spent their lives at the work. *These men must not retire to the cities where they do no good; they must be helped to remain at their own callings.*

Improve Farm Conditions

We cannot at present force them to remain. We must give them the conveniences of city life, which they are seeking in the cities. Put electric lights in the barn instead of the old lantern. Put running water in the house and the barn and banish the tin basin. Put electric milkers, churns, washing machines and all the other varieties of labor and time-saving devices on the farm and make the farmer a farm executive, directing the energies of the electric current.

Take him out of slavery and make him the head of his business and you have done much to keep him in the country where he belongs and where he can do the most good for himself and for others.

Farm environment must be improved if our rural population is to be held to its duties producing food for the nation and the nation's army and navy. Labor for the farms can be drafted if necessary, but unless the men on the farms are interested in the work and like it, *the greatest efficiency will be an absolute impossibility.*

The automotive dealer is playing a big part in the back-to-the-farm movement, even though he may not be conscious of it. He is supplying several very important helps in sending farm drudgery into oblivion. He is supplying the passenger car to quickly carry the farmer, his family or his help to and from town. The motor truck to haul the "finished product" of the farm is also supplied through the automotive dealer, and he is further responsible for the introduction of the tractor with its many kinds of farming implements and labor savers.

Here we see a class of dealers who have been responsible for the introduction of speedy methods of carrying people and merchandise and a time and labor saving means of plowing, disking and other operations on the farm. Let the dealer now go a step farther and supply the farm with farm lighting and power outfits; then we shall have a dealer who is doing his utmost to make the farm as attractive from the standpoint of convenience as the city can be.

Become Leader in New Things

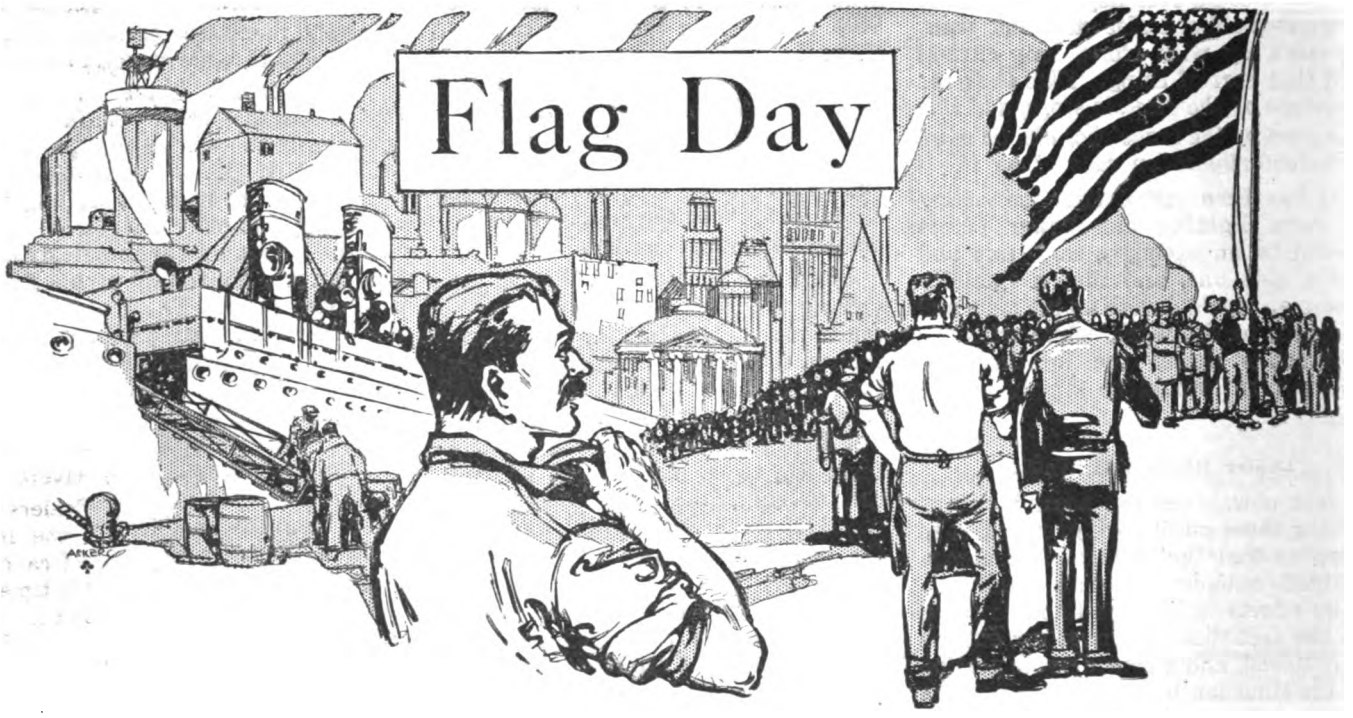
This is an age of marvels. It has seen the city workman's living conditions improve until to-day the poorest toiler is provided with luxuries that were not even within reach of the wealthy a few generations ago. Let us carry these "luxuries," which have now become necessities, out to the rural workman.

The dealer in farming communities can easily make of himself a "modernization center" or an institution to keep farm equipment up to date and modern as fast as inventors and factories can turn out new and improved devices for doing more work with less help, in less time and for less money.

It is of the utmost importance that good salesmen, men who will be in business next year and for many years to come, men who know their prospects and will go out and visit them, be selected to sell this modern equipment. There is no better man for this than the motor car dealer.

And we may go even farther. The farm-lighting manufacturer wants permanent and satisfactory distribution—which the motor car man can give him. *Furthermore, he wants immediate distribution, wherefore he finds already at hand in the great motor car dealer organization of this country A WELL WORKING PIECE OF MACHINERY WHICH CAN SEND HIS PRODUCTS BROADCAST TO AMERICA'S SEVEN MILLION FARMS.*

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June 14 Is Flag Day for All the Nation

Of course YOUR organization will not ignore this stimulus to patriotic effort

SUGGESTED FLAG DAY PROGRAM

Prepared for celebrations by business organizations to occupy part of noon hour

A committee of employers and employees, with foreign born men represented on committee, should be appointed to arrange details, secure bugler, singers, speaker, and colors.

1—Bugle Call Rally to Flag-Staff or Place of Raising

2—Flag Raising

As Flag rises, "The Star Spangled Banner" should be sung either as solo or in unison.

3—Salute to the Flag

(To be given either as song, chant, or spoken words) "I pledge allegiance to my Flag, and to the Republic for which it stands. One nation indivisible with Liberty and Justice for all."

4—American's Creed

(*to be said in unison*)

"I believe in the United States of America as a government of the people, by the people, for the people; whose just powers are derived from the consent of the governed; a democracy in a republic; a sovereign nation of many sovereign states; a perfect union, one and inseparable, established upon those principles of freedom, equality, justice and humanity for which American patriots sacrificed their lives and fortunes. "I therefore believe it is my duty to my country to love it; to support its Constitution; to obey its laws; to respect its flag, and to defend it against all enemies."

5—Address by Four-Minute Man or Other Speaker

6—Song—"America"

FLAG DAY in each dealer's place of business will help make better Americans of us all—both those born here and abroad. It will spur all on to greater effort patriotically and industrially.

A coupon on this page provides means for each dealer to request speakers, posters, etc., from the Bureau of Education in Washington. But in case your request should not be received in time **make your own speech.**

Distribute copies of the creeds at the left on this page, follow the program as outlined and unfurl a flag in a conspicuous location inside or outside your place of business, according to which location is most advantageous.

But, however you do it, HAVE A FLAG DAY.

Pin This Coupon to Your Letterhead and Mail to

Bureau of Education, Washington, D. C.

Check Your Needs: Patriotic Posters..... Program.....

Four-minute men.....

Firm Name..... By .....

Address..... Number of employees.....

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SELLING YOUR FUTURE TO

Buy Peace of Mind

By Ray W. Sherman

HENRY BENNETT, who sold the Redman car in Callawassa, was not a competitor of Reilly and the Sennett for two reasons. One was that the Redman was lower-priced and less popular and the other was that the two business houses in comparison were something like a doghouse and Senator Clark's Fifth Avenue palace.

But Henry's friendship with Reilly dated back to the old baseball-in-the-sand-lot days; wherefore Henry always looked over all of Reilly's ideas, declared them to be fine, asserted he would steal them—and then pursued the unruffled tenor of his existence.

Lately Henry had been having hard sledding. When his sales fell off he let them fall—and worried. And when he had worried about four dollars' worth he always went down and talked to Reilly to see if the Sennett business had started to fall off yet.

"What now, Reilly? What now?"

The Sennett dealer's desk was covered with records, books, maps, charts, figures and data and the floor was littered with waste paper.

"Just figuring a bit, Henry. How's business?"

Rotten! Rotten! Rottener!

"Rotten! Getting rottener every day!" Henry was anything but joyful.

"Well—that's bad," said Reilly, still figuring.

"What's the mess?" Henry looked over the disorder in Reilly's office.

"Just figuring to see how few cars I can sell before the sales department ceases to meet the overhead. *Also, I'm trying to see if there is any of the overhead I can shave off if I have to.*"

"Gosh, Reilly, but you're always stirring up a mess of trouble for yourself, aren't you? You never could enjoy life and be happy. You always have to figure yourself into all the hard luck you can. If you're making money—as I'm sure you are—why can't you go ahead and keep on making money? You—"

"Henry," Reilly interrupted, "if more of you lads up and down the row would pay a little more real attention to your hard luck and less attention to your good fortune you would have a greater proportion of good fortune.

"A lot of you are afraid of yourselves. You are afraid of the truth. You don't dare dig into your businesses and find out whether drastic action is needed. The result is that an evil condition some day asserts itself so strongly that something desperate has to be done—and then the patient dies or becomes an invalid for life."

Henry "humphed."

Afraid of Themselves

"You can humph if you want to, Henry, but what I'm telling you is God's honest truth. Most men are afraid of themselves. They are afraid to dig into themselves and find out if anything is wrong. They're afraid they will find something wrong, and they know—as you have said—that this would upset their peace of mind. *The man who thinks that way, Henry, has peace of mind because he has only a piece of a mind,*

"Too many business men—and individuals too—are afraid of knowing the truth about themselves and their businesses. If you have a bum tooth you know there is a chance that there is something wrong with several of your teeth. You know you ought to see a dentist right away and have everything overhauled.

"You also know it is an unpleasant job—and so you postpone it. As long as your teeth don't jump up and down and make life unbearable you chew along on one side of your face, favor the bum tooth and get by as long as you can. Then some day the tooth goes on a rampage and you HAVE to go to a dentist. Being a good merchandiser, he looks them all over and tells you of all the things you ought to have done. Maybe you have let some things go so long that drastic action is necessary and the repair bill is enormous. But you've put it off so long you have to go through with it and pay the bill.

"You were afraid of yourself, afraid of the truth, and you have to pay a big price for salvage. If you can save anything at all at any cost you're lucky.

Cherished Peace of Mind

"The same thing applies to your own business, Henry. You're getting into a tight hole, as I have been telling you for a long time. But you've managed to get along and enjoy what you thought was peace of mind, so you haven't done anything—except drift.

"Months ago you saw your car sales going down. Your factory can't give you the cars you want—and your total sales for this summer aren't going to be as big as last year, even if you could get the cars. Your overhead had been about the same. The result is that your profit income curve has been sliding down toward your expense curve, and you never looked into your business to see how fast it was sliding or how long it probably would be before things hit bottom at their present rate.

"You were not wiling to admit that things might hit bottom. You knew if they ever did you would be out of business over night and you were afraid to look the facts in the face. One half of you ran along as usual and was afraid to let the other half investigate and show up the true situation. It would have destroyed your pieced-together-mind.

Must Face Bold Facts

"But these are days, Henry, when we've got to look facts in the face. If the whole world had looked the truth in the face when you and I were babies there might not have been any war today. But the world let the German philosophy of 'macht' grow unnoticed and unmolested and looked it in the face only when it walked in the front door with a club in its hand. *Then it was too late to save anything except at an enormous cost—which we are paying to-day.*

"During the next ten years dealer businesses must be changed in many ways. The automotive dealer is going to be the firm business rock in this trade. An investigation shows it, but thousands of dealers with their so-called peace of mind refuse to see the signs of the times. Some day they'll make a start when it's too late to catch up.

"And there are things we must know TO-DAY. A storm MAY come. What is it? It may take various forms. It may be a big decrease in car output. It may be a big demand for trucks, or farm lighting systems, or tractors, or other goods. It may be a cut in profits that will necessitate cuts in expenses. But too many of us are unwilling to let ourselves find the truth because it means getting out of old ways and into new ways, reshaping our businesses, acquiring new habits of mind and making real effort. Salesmen and employees do the same thing. They know they are not hitting a hundred per cent and are afraid to find out why. We are selling our futures to buy peace of mind. We—Where are you going?"

Henry started out the door with his hand on his jaw.

"To the dentist. You've talked this darned tooth into a toothache."

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How to Lay Out a Building—8

THIS is the last of a series of articles which take up in detail the layout and arrangement of buildings for the dealer, garage and repairshop.

By Harold F. Blanchard

We shall be glad to help you lay out your building. Be sure to send a rough pencil sketch of the location and give all dimensions. Tell us exactly what you want—showroom, garage, repairshop, accessory display.—EDITOR.

Plan No. 11

ASSUME that Fig. 28 calls for a large showroom unit, a used-car showroom, garage and shop for a two-story building on a plot 50 x 120 ft. The showrom unit, Fig. 14, is selected as satisfactory, and the shop unit in Fig. 3 is placed on the second floor. A strip 25 ft. wide across the building directly back of the showroom unit is assumed large enough for the used-car showroom.

The remainder of the space is for the garage. On the ground floor the only way to arrange the cars is crosswise, as an inspection of the space will show. Cars are arranged lengthwise upstairs.

Plan No. 12

A LARGE showroom, small shop and garage for a plot 50 x 100 ft. are the assumed specifications in this case, Fig. 29. Showroom unit, Fig. 13, we will assume is just what is wanted, and the same holds for shop unit, Fig. 30. The remainder of the space is for a garage.

The garage in this case is only about 30 ft. broad, not sufficient for two rows of cars and an aisle between. There are two alternatives. Either the space must be used just as it is, in which case no system can be used in parking the cars, or it might be possible to reduce the depth of showroom and shop sufficiently to make the garage space 45 ft., which would be wide enough except for very large cars.

Plan No. 13

A LARGE showroom and a large shop with the remainder of the space devoted to garage purposes we will assume is required on a corner plot 80 x 150 ft., Fig. 30. Showroom and garage unit, Fig. 13, modified to suit, seem satisfactory, and shop unit, Fig. 18, slightly contracted, is all right for the shop.

Wants Good Display

Editor Motor World: We are going to build a garage and would like to have you draw us a plan for a front, with all details for glass and doors. Enclosed find a plan of the room as planned. One story high, flat roof towards back. We want the front window sill 1 ft. from floor, about 7 or 8 ft. plate glass and a 3 ft. sash above plate. The front will be brick as high as glass, and from there up building tile. Drive-away door and door into showroom to be set in.—Riendl Auto Co., Tigerton, Wis., Joseph Riendl.

Answer—We shall be very glad to draw a front for you if you will be kind enough to forward a rough plan of the front showing exactly what you have in mind. We are asking you to do this because we are not quite certain, from reading your description, as to what you want, and unless we understand exactly what you desire we may turn out something which would not suit you.

A rough plan of the front similar to the rough garage plan which you sent us is all that is required. Please do not fail to put on any dimensions that you want us to follow.

We should like to offer a suggestion that we think you are making a mistake

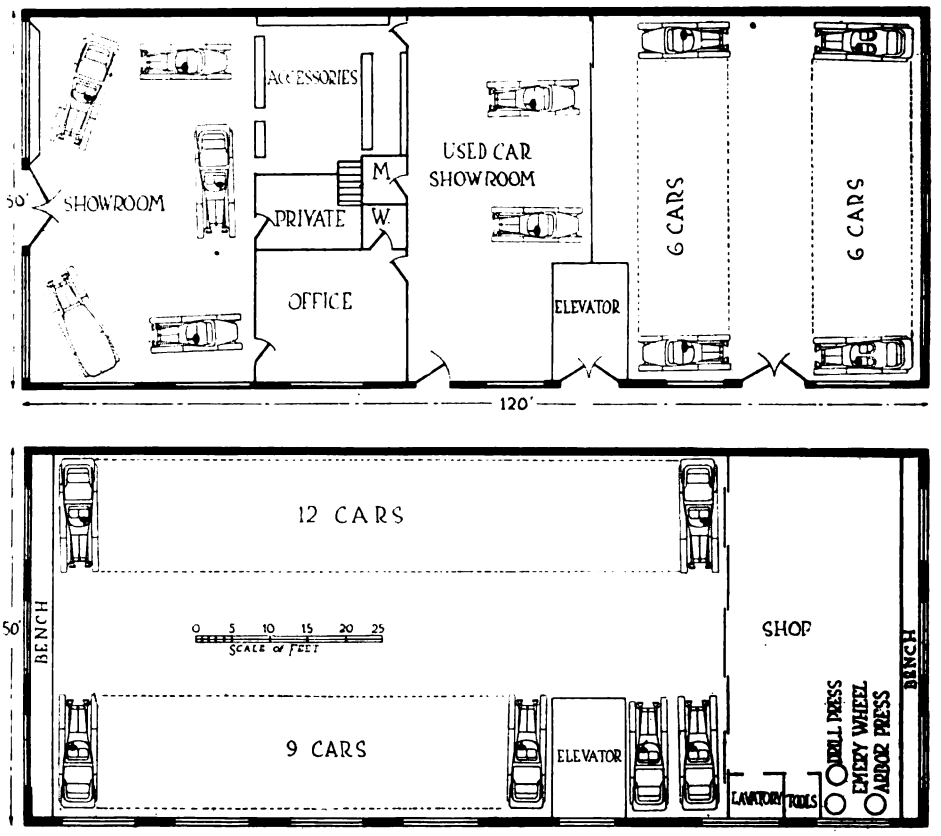
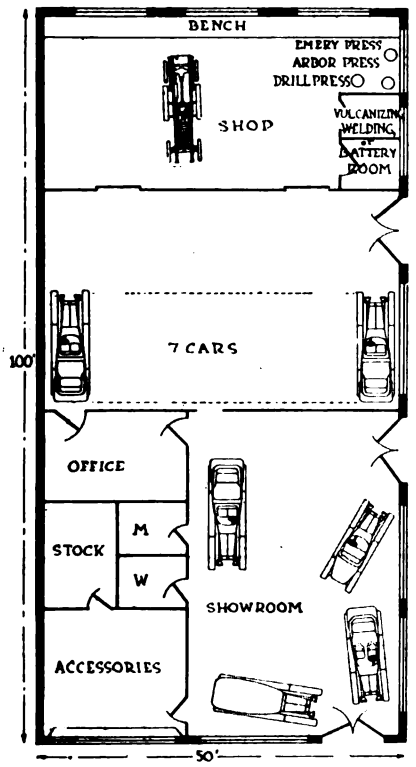


Fig. 28—This plan has been laid out with the view of accommodating a large showroom unit, a used car showroom and a garage and shop

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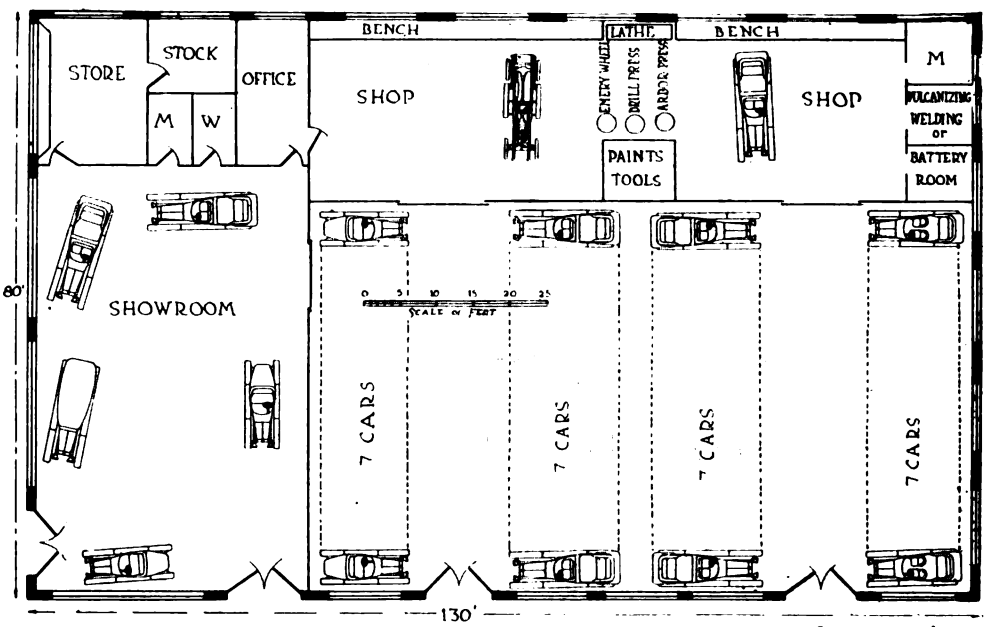
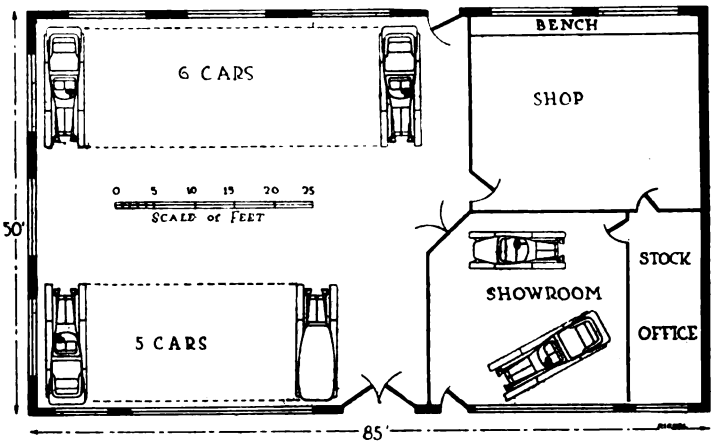


Fig. 29, left—Plan No. 12 is for a small shop and garage on a plot approximately 50 x 100. Fig. 30, above—A large showroom and a large shop with the remainder of the space devoted to garage purposes are the requirements in this case

by putting the garage entrance at one side of the garage room. We believe you will be better satisfied with the door in the center of the space inasmuch as you will find it more convenient in storing cars.

Bloomington to Close Sundays

BLOOMINGTON, ILL., May 31—The Bloomington Automobile Trade Association has taken up the proposition of Sunday and night closing of garages. A committee has been appointed to draw up an agreement by which one or two plants will keep open each night and on Sunday, while the remainder will be closed. It has been found that the night business is about enough to be profitable for one garage, while the Sunday business would pay perhaps two to keep open. For the remainder the active operation would be considered a loss. The dealers are all favorable to the movement and it will likely be adopted at the next meeting. It is proposed to take monthly turns in keeping open and a schedule will be arranged which will be mutually satisfactory.



This is a plan of the garage shown in frontal elevation in the illustration below

More Money for Farmers

WASHINGTON, May 31—A production of about 572,000,000 bu. of winter wheat is forecast by the Department of Agriculture from the condition of the plant in the United States on May 1, which compares with a forecast of 560,000,000 bu. made on April 1. The production last year was estimated at 418,000,000 bu. and the average of the preceding five years was 553,000,000 bu. The largest production ever recorded is 685,000,000 bu. in 1914 and the smallest production of the past 10 years is 400,000,000 bu. in 1912.



Joseph Riendl, Tigerton, Wis., asked for a suggestion for the front of his garage. He wanted good display with plenty of windows and large doors

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A Department of

BETTER MECHANICS

No. 70

Overhaul Operations on the Republic Truck

By J. HOWARD PILE

IN these overhaul operations on Republic trucks, the same methods apply to all the models with some exceptions as noted, and the same tools will be needed, the only differences being in the size of bolts, cap screws and nuts. The following list gives the sizes of all solid wrenches on all operations on all the models:

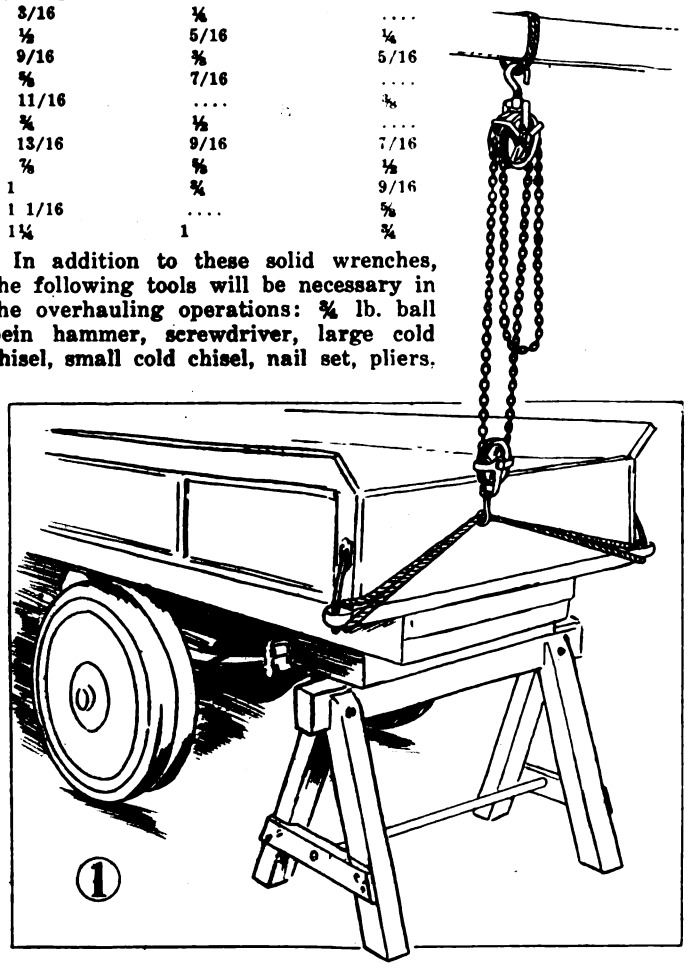
Wrench Opening	Cap Screw Size	Hexagon Nut Size
3/16	⅛	....
½	5/16	¼
9/16	⅜	5/16
⅝	7/16	....
11/16	....	⅜
¾	½	....
13/16	9/16	7/16
⅞	⅝	½
1	¾	9/16
1 1/16	....	⅝
1¼	1	¾

In addition to these solid wrenches, the following tools will be necessary in the overhauling operations: ¾ lb. ball pein hammer, screwdriver, large cold chisel, small cold chisel, nail set, pliers, large monkey wrench, small monkey wrench or adjustable end wrench, two jacks, factory truck, trestle to set rear of body on, chain hoist or block and fall, special bearing adjusting ring spanner, sheet of steel or tin 18 x 6 in. to slide wheel on, paint brush to clean off parts with gasoline, blocks to wedge clutch pedal, oil squirt can.

Materials needed: 6 ft. No. 10 iron wire, cotter pins of the following sizes:

Diameter	Length								
1/16	—	⅝	¾	—	1	—	—	—	—	—
3/32	½	⅝	¾	⅞	1	1¼	—	—	2	—
⅛	—	—	¾	⅞	—	1¼	1½	1¾	2	—
5/32	—	—	—	—	—	—	—	—	2	—
3/16	—	—	—	—	—	—	1½	—	2	3
7/32	—	—	—	—	—	—	—	—	—	3

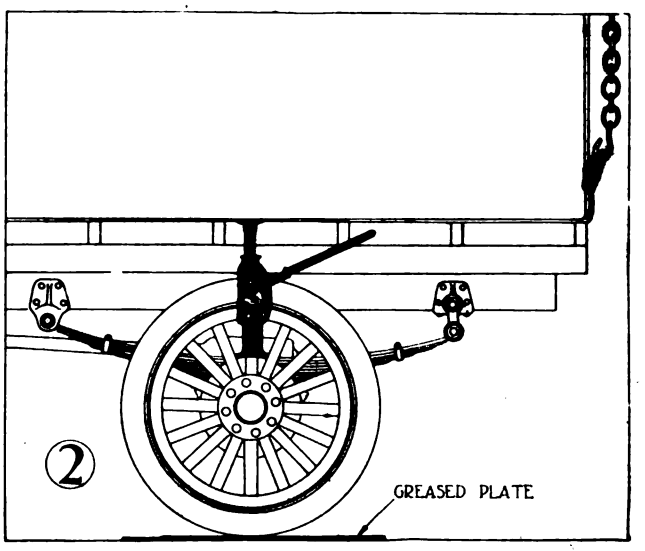
A working assortment would include not less than a dozen each of the smaller sizes and a half dozen each of the larger sizes. This number will be ample for overhauling one truck. Other materials needed are: gasoline, kerosene, or hot soda solution for cleaning, rags or waste, lubricating oil, grease for gearset, differential and universals, grease for cups, graphite grease for springs, light oil for magneto, replacement parts for those worn out.



1. *The rear end of the frame is raised so that the wheels clear the floor.* 2. *A greased plate is put under the wheel and the wheel jacked down by a jack between the axle and body, till the tire rests on the plate*

Rear Axle Overhaul

This operation applies to all models fitted with Torbensen internal gear drive axles, Models A and 12, E and 11, F and 10 and Model T being so fitted. Some of the models A and 12 have Celfor



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axles and all of the Model T trucks have Celfor axles.

1. Hoist rear of truck with chain hoist or block and fall and set trestle under rear end of frame. Height of trestle varies with the different models, but should be so that wheels clear the floor by about ½ in.

2. Remove four cap screws from hub-cap flanges.

3. Slip hub cap off.

4. Remove cotter pin from axle spindle.

5. Remove hexagon nut from axle spindle. *This is a right-hand thread on the right side and a left-hand thread on the left side.*

6. Slip off lock washer.

7. Unscrew bearing adjusting ring with special spanner which goes over the spindle and engages the lug on the adjusting ring. *This ring has a right-hand thread on the right wheel and a left-hand thread on the left wheel.*

8. Place jack between top of spring and underneath side of body and raise jack till tire just touches a greased metal plate which has been placed beneath it.

9. Slide wheel off. The outer bearing will come out with the wheel and the inner bearing will stay on the spindle.

10. Remove the other wheel in the same way.

11. Remove propeller shaft. (*See separate operation on this.*)

12. Remove cotter pins and clevis pins from four brake pull rods where they connect with rocker arms on axle.

13. Remove jacks from between springs and body.

14. Jack up axle till the weight of the axle is on the jacks *and not hanging on the springs. Do not jack up so far that the springs exert an upward pressure on the spring bolts.*

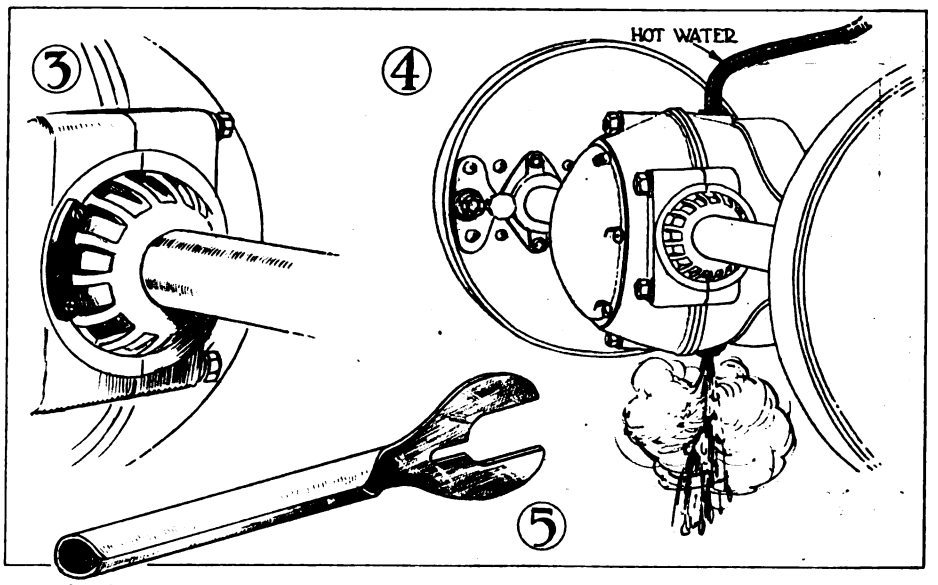
15. Remove cotter pins and nuts from each of the front end spring bolts and the lower end shackle bolts.

16. Roll factory truck under center of axle between the jacks and block with pieces of wood on the two ends, but do not block it up high or the springs will catch in the frame when you attempt to roll the axle out.

17. Drive out the spring bolts, replacing the nut on each as it is taken out.

18. Lower axle onto factory truck by lowering the two jacks and then take the jacks out of the way.

19. Pull truck out from beneath car.



3. The differential bearing adjuster lock is blackened in in the illustration. When the screws are removed, the differential bearing adjuster can be turned. 4. Hot water from a hose cleans out the oil and grease. 5. A spanner to be used on the wheel bearing adjusting ring

20. Turn axle upside down on truck. This will require two men, perhaps three on the larger trucks.

21. Twist a piece of iron wire around the springs on each side of the clips and close to the clips to keep the spring from coming apart if the center bolt is broken or has lost its nut.

22. Remove locknuts and nuts from spring clips.

23. Drive spring clips out with hammer and punch, replacing nuts on the clips.

24. The springs are now ready to be tagged and shipped if they are to be reset and have additional leaves added. This is a factory job and cannot be done satisfactorily in the service station. Springs are usually reset when they become flattened under severe use and heavy loads. If the body has a tendency to come down on the tires under load, the springs should be reset, and if the loads are customarily heavy, extra leaves can be added with good results.

25. If the springs are not to be reset, pry the leaves apart with a screwdriver or spring spreader and spread graphite grease well around with a hacksaw blade. If the springs are very rusty, the wires can be cut after the spring is placed in a vise, the leaves cleaned up with scraper, file and emery cloth, carefully washed in gasoline, kerosene or hot soda solution, greased, leaves assembled, squeezed together in the vise and wired up again. The spring leaves have lubricant pockets in the ends, and these should be well filled.

26. Clean off outside of axle, brake bands and exposed mechanism at the ends, using gasoline, kerosene or hot soda solution.

27. Remove axle drain plug.

28. Take axle to wash rack.

29. Turn axle right side up.

30. Remove top plug.

31. After grease runs out, run boiling hot water from a hose into the top plug and block axle so that it will run out of the bottom plug. About 15 minutes will clean out all of the old grease.

32. Remove two screws from each differential bearing adjuster lock and set differential bearing adjuster with punch and hammer so that there is a minimum of lost motion without binding.

33. Replace differential bearing adjuster locks and replace screws.

34. Replace drain plug.

35. Pack differential with lubricant. This can be done by shooting very heavy oil or fiber grease through the top plug with a grease gun; or the differential cover can be removed by taking out the six holding screws, and the differential packed through the opening.

36. Replace top axle plug or differential cover, depending on method which was used to lubricate the differential.

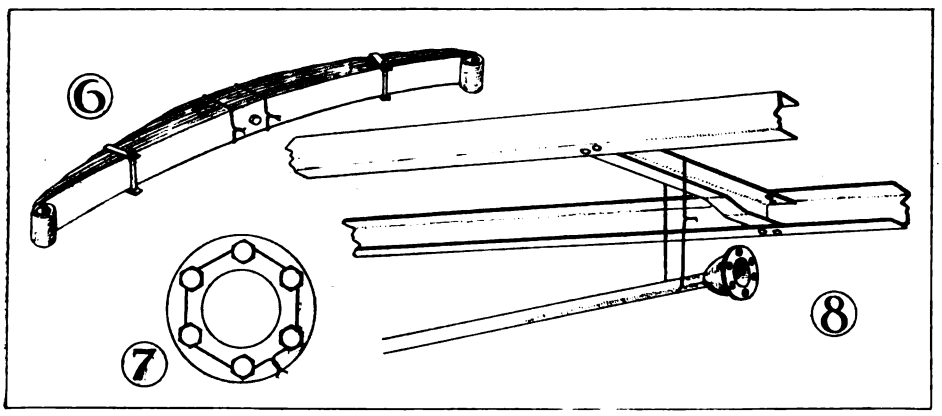
37. Replace springs, clips and nuts, setting up tight as possible, and locking nuts on tight.

38. Put axle on factory truck, right side up and wheel into place under the truck.

39. Jack axle into position with two jacks.

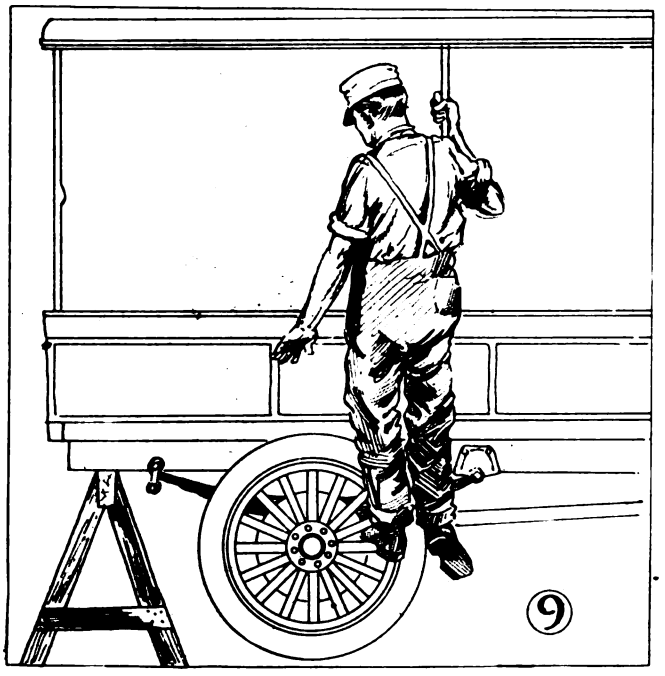
40. Replace spring bolts, nuts and cotters, using grease.

41. Remove jacks and factory truck.



6. Wiring the leaves together before taking off the clips. 7. Wire through the heads of cap screws on the universals. 8. The front end of the propeller shaft is hung in a sling while the back one is being disconnected

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9. *Adjusting the brakes. A man stands on the spokes to try the adjustment*

42. Replace propeller shaft. (*See separate operation on this.*)

43. Grease inner wheel bearings, pinion gear and internal gear on wheel with heavy grease that will not run. Oil brake cams and joints.

44. Place jack between top of spring and bottom of body and raise jack till axle spindle is depressed so that the wheel will slip on the greased plate into place without lifting.

45. Grease outer wheel bearing and slip in place.

46. Replace bearing adjusting ring, setting it up tight with the special spanner, then loosen it from ⅛ to ¼ turn till the wheel turns without binding, but without shake.

47. Replace locking ring, so that the lug on the adjusting ring fits into one of the holes in the locking ring. If it will not go, turn the adjusting ring to the nearest hole.

48. Replace hexagon nut and set up tight.

49. Put in new cotter pin and spread ends.

50. Replace hub cap.

51. Replace hub cap screws.

52. Put other wheel on.

53. Connect brake pull rods to brake arms, inserting clevis pins and new cotter pins.

54. Adjust brakes. (*See separate operation on this.*)

55. Hoist body and remove trestle.

Propeller Shaft Overhaul

THIS operation describes in detail the taking down of the propeller shaft to lubricate and replace worn parts.

Several types of universals and propeller shafts are used on the different models, including Kinsler-Bennet, Arvac, Acme and Hartford. The operation is practically the same for all kinds:

1. Put a wire sling around the front end of the propeller shaft, hanging it from the cross member of the frame.

2. Disconnect the front universal first. Cut the wire that goes through the heads of the cap screws holding the housings together.

3. Remove the cap screws.

4. Cut wire on rear universal housing and remove cap screws.

5. Drop rear end of shaft down and pull on it. The slip joint will then pull out.

6. Shaft is slipped out of the sling, leaving the sling in place, and shaft is taken to bench and put in vise.

7. Remove felt grease retainer ring with screwdriver.

8. Remove felt grease retainer.

9. Slip housing back on shaft.

10. Remove cotter pins on nuts.

11. Remove nuts.

12. Drive universal pin out with punch.

13. Remove key that goes across back of universal with pliers.

14. Remove T-block.

15. Tap bushings out.

16. Wash all parts with gasoline, kerosene or soda solution.

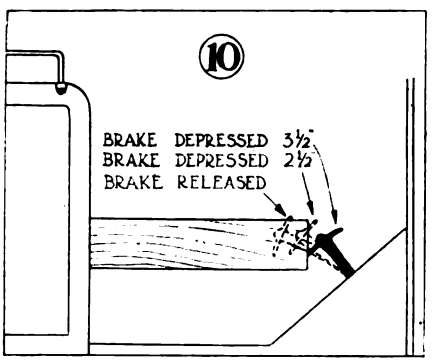
17. Replace worn parts.

18. Replace bushings.

19. Replace T-block.

20. Put new key in back of universal.

21. Slip housing in place.



10. *Two blocks of different lengths to depress the clutch pedal respectively 2½ and 3½ in.*

22. Replace felt grease retainer.

23. Replace felt grease retainer ring.

24. Replace universal pin.

25. Replace universal pin nuts.

26. Put in new cotter pins.

27. Fill housing with heavy grease.

28. Slip front end of housing in wire loop.

29. Draw rear end housing to place.

30. Replace cap screws.

31. Replace cap screws in front end.

32. Remove wire sling.

33. Thread a wire through cap screw heads, front and rear, and twist ends of wire together. This prevents the screws from turning.

Adjusting Brakes

THE operation of adjusting brakes is the same whether for Celfor or Torbensen axle. The brakes should be adjusted when the wheels are jacked up free of the floor. When the rear axle is being overhauled, it can be done before the rear end of the car is taken off the trestle. Have the gear shift lever in neutral. If the rear axle is on jacks, block front wheels securely or the truck will rock off the jacks when you attempt to turn the rear wheels to test the brakes.

Emergency or Hand Brake

1. Loosen locknuts on forward end of two outside brake pull rods going from brake shaft to rocker arms on rear axle.

2. See that wheel is entirely free to turn with both brakes off. If not free, lengthen rods by taking out cotter pin, clevis pin and unscrewing yoke on pull rod two or three turns. Replace clevis pin and try again. If service brake drags, lengthen two inside rods in the same way.

3. Set hand-brake lever back three notches.

4. Shorten outside pull rods by screwing up the yokes till each wheel will just move when a man stands on one of the spokes of the wheel.

5. Set hand-brake lever back one more notch, or four notches altogether.

6. Wheels should not turn under a man's weight, and should just give a trifle when a man jumps on the spoke.

7. See that both wheels are equally braked in this position.

8. Release hand brake and see that wheel still turns freely. If it does not, the brake band may be bent, and it should be taken off and straightened.

9. Insert cotter pins in clevis pins.

10. Tighten lock nuts against yokes.

Service or Foot Brake

11. Cut two blocks of wood to such a length that when placed between the front board of the driver's seat and the brake pedal, the shorter one will depress the pedal 2½ in. and the longer one will depress it 3½ in.

12. Insert the short block.

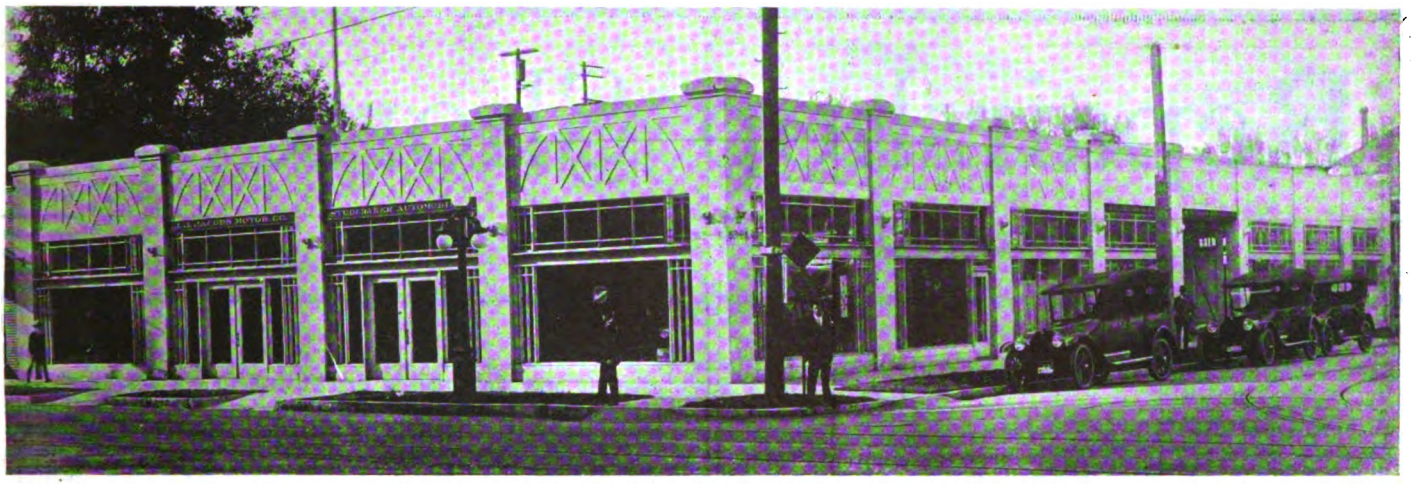
13. Adjust inside pull rods till the brake holds the same as it did with the hand brake in the third notch. Each wheel should brake equally.

14. Insert long block to depress pedal 3½ in.

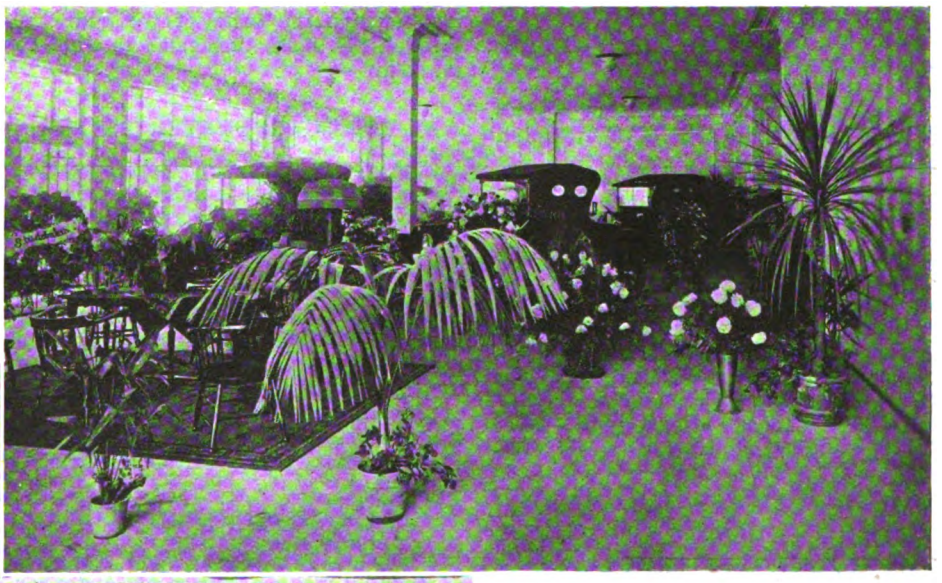
15. Wheels should not move under a man's weight in this position and should

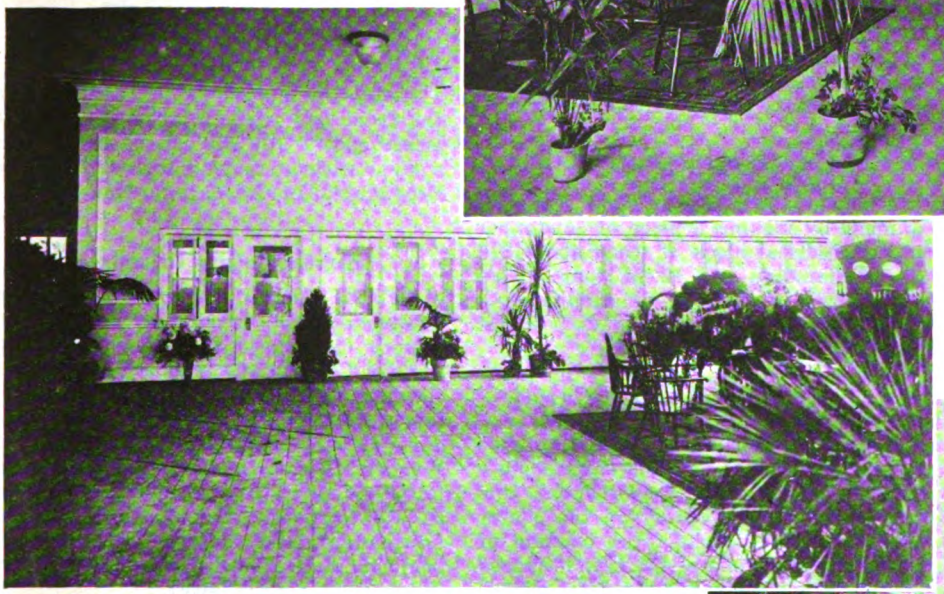
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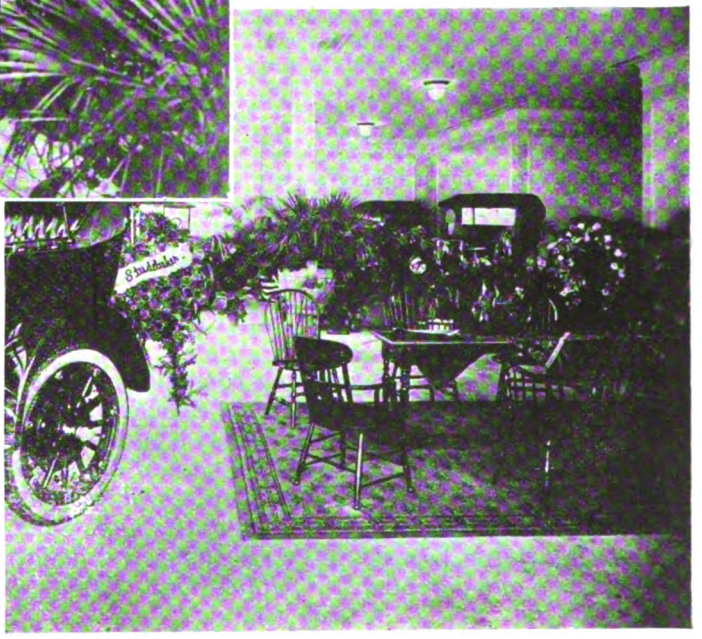


Palms and Flowers Make His Cars Sell Better





Sacramento, where this salesroom is located, is California's capital. It has 50,000 people and 25 motor car dealers



The pictures on this page are of the home of the J. J. Jacobs Motor Co., which sells the Studebaker in Sacramento, Cal. The dealer believes that a fitting atmosphere helps sell cars, so he uses palms and flowers plentifully on various occasions. Decorations to a considerable extent are used at all times

The picture at the top of the page shows the attractive exterior of his building. The other pictures illustrate the effect that is obtained by a fine floor, appropriate furniture, rugs, etc., and the use of flowers and palms

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Repairshop Shortcuts

From Motor World Mechanics

No. 1691—VALVE LIFTER FOR FORDS

A Ford valve lifter can be altered so that it will not slip through the hook by drilling a hole in the lifter between the end and the bend and riveting a hub brake lever clevis in the hole. The eye end of an old brake rod is secured in the clevis with a clevis pin and the rod cut to a length of 4 in. and bent over. This gives a universal action. The handle end of the lifter is bent down so that it will not wobble in the hand.—Rudolph Balmor, Devine, Tex.

No. 1692—TRAVELING HANGER

A traveling hanger for chain hoist or tackle is made from two pieces of flat bar stock, bent nearly at right angles at the top and drawn down to a round section. Rollers are attached to the ends thus bent, and two cross bolts below keep the hanger together and make a place to hang the hook of the hoist on.—Franklin Service Station, Newark, N. J.

No. 1693—UNIVERSAL RADIATOR STAND

The radiator stand illustrated offers exceptional accessibility in doing radiator work since it carries the radiator on a rotating table whose axis may be placed at any angle with the vertical. The angle at which the stand is set is determined by a clamp at the base and rotational position by the pin at A; there is a circle of holes in the wood block and a single hole in the metal plate beneath so that the table may be held in any position.

No. 1694—GEAR MOVER

The tool shown is for gripping a gear which is stiff on its shaft but which must be rotated for timing or of inserting a key or pin, or in some cases it may be used as a means for turning camshaft or crankshaft, the former for timing and the latter also for timing or in connection with bearing adjustment. It consists of two strips of metal hinged at one end and with the other ends bent in so that they engage the teeth of the gear. A through-bolt holds the members tight to the gear.

No. 1695—CARBURETER TESTER

Carbureters used with a pressure system cannot be satisfactorily tested for float chamber troubles without supplying the fuel under the normal pressure for which the system was designed. The apparatus shown is for this purpose and consists of a small tank mounted on the wall over the bench and having a hand pump, a pressure gage and several outlets for attaching carbureters. Such an apparatus is of value in testing for leaky float valves, setting float levels, etc.—Pierce-Arrow Service Station, Buffalo.

No. 1696—SANDPAPER BLOCK

A sandpaper block for tire repairing is made by tacking a piece of sandpaper to a cylindrical block of wood about 3½ in. in diameter and 12 in. long. This economizes in the use of sandpaper.—C. C. Harry, Harry Motor Co., Mount Summit, Ind.

No. 1697—VALVE-SPRING TOOL

A tool for releasing valve-spring pins in overhead valves is made from a piece of ⅜ in. gas pipe and a door knob. One end of the pipe is sawed up the center about 3 in. and spread to an opening of 1 in. The other end of the pipe is placed in the door knob and babbitt poured around it to hold the two together. The tool is placed over the valve-spring cup and pushed down, thus allowing the pin to be drawn out with the fingers or pliers.—Everett Harlow, City Garage, Macon, Ill.

No. 1698—WHISTLE PRESSURE SIGNAL

Through thoughtlessness or carelessness the air compressor may be allowed to run until the pressure in the air tank has risen above the desired maximum. A small safety valve with the blow-off connected to a whistle is a simple means for giving warning when the compressor should be shut off. The pressure at which the valve should act may be regulated by moving the weight on the lever arm in or out.—Pierce-Arrow Service Station, Buffalo.

No. 1699—HOOKS FOR CHAIN HOISTS

Hooks are placed in the ceiling over the front and rear of every car so that either end of any car can be lifted with a hoist without moving the car.—Ernest Bregagnolo, Bord's Garage, New York.

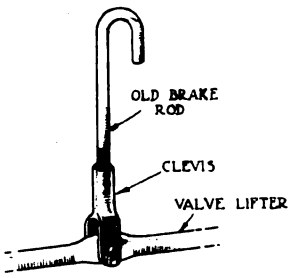
Berrien County Organizes

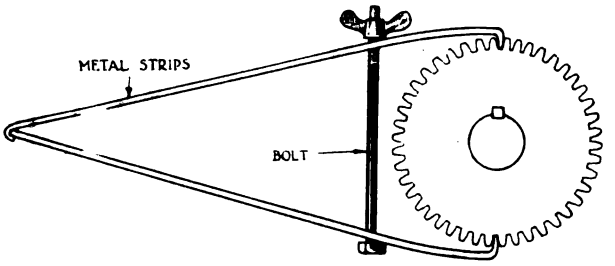
SOUTH BEND, IND., May 31—The automobile and garagemen of Berrien County, Michigan, have organized the Berrien County Automobile Trade Association. The following officers and directors were elected: President, Philip Friday (Niles); vice-president, Clarence Warner (Benton Harbor); publicity man, Ralph Moody (St. Joseph); directors, H. W. Brewster (Niles), Harry Boyce (Buchanan), A. S. Messner (Benton Harbor), H. H. Gast (St. Joseph), William Puterbaugh (Eau Claire).

$1 a Helpful Kink

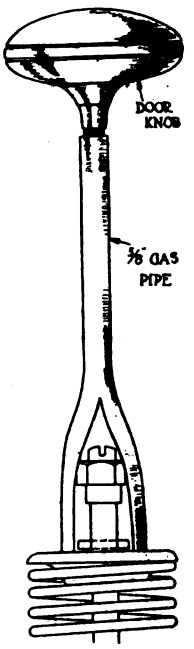
HOW often have you been compelled to rack your brain to overcome some difficulty? But when you did find a solution—what a satisfaction it was! Well, here's a chance for you to dig some of those life-savers out of their hiding places and put them to work for your fellow-craftsmen. Send them to Motor World. We will pay you a dollar for every one accepted for publication. The only requirements are these: 1—Describe the short-cut briefly but clearly, in few words. 2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job. 3—Write on ONE side of the paper only. 4—Sign your name and initials, the name of the company you are with, and the town. Write plainly. If your name is unusual, print it in capital letters.

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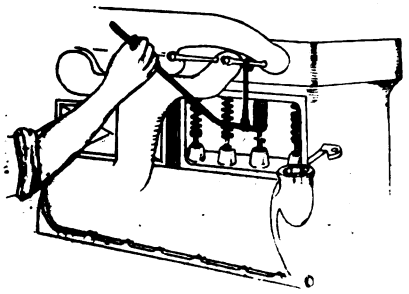




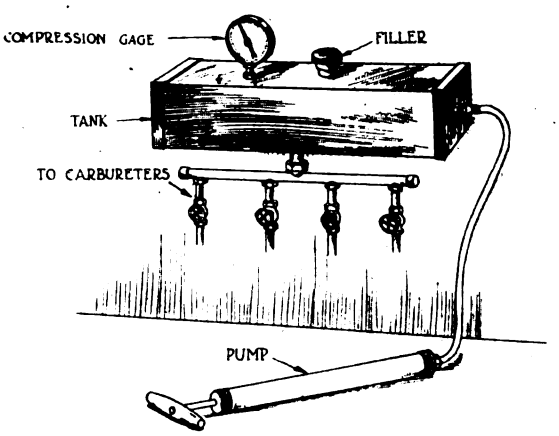
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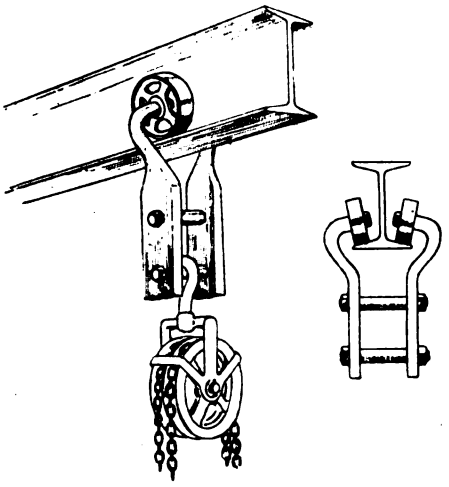


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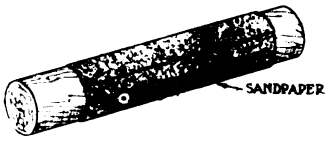




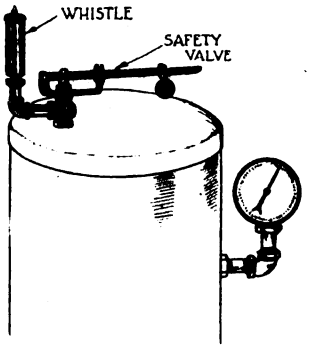
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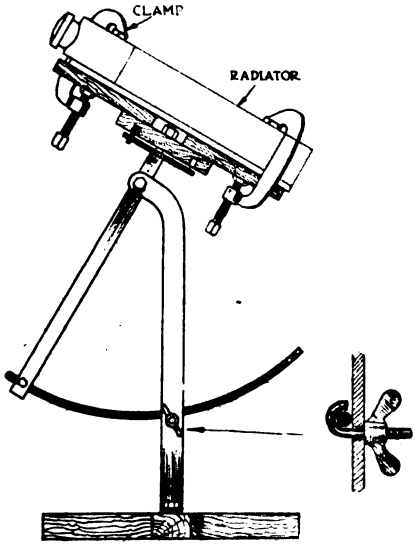
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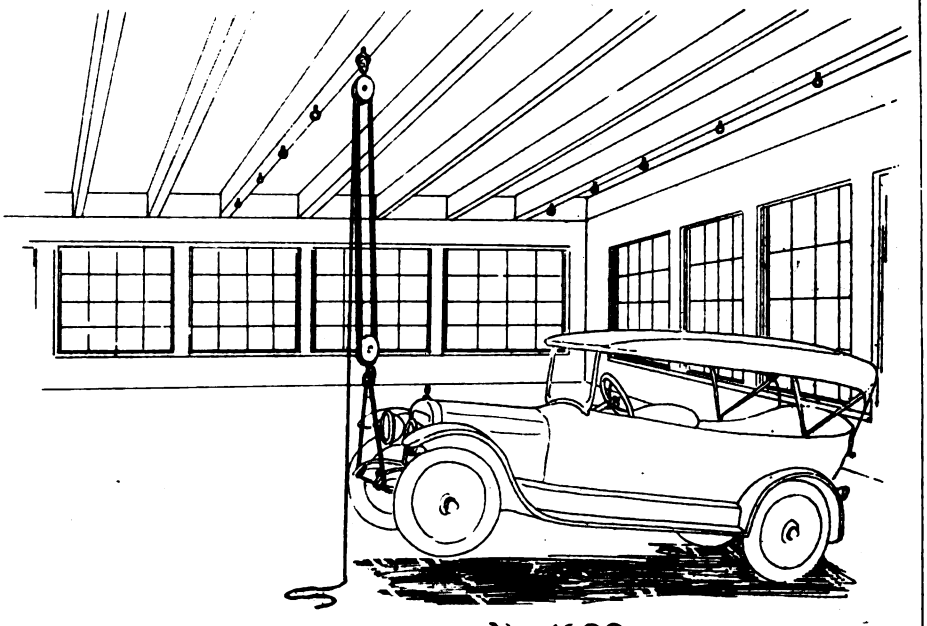
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No 1693



No. 1699

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Editorial Observation

Centralizing the Industry's Skill

THERE are changes and still more changes due to the conditions under which we are living to-day. One of the changes which have appeared in accentuated form is the scarcity of labor and the inability of many repairshops and service stations to turn out work in the quantity and of the quality that has been known in the past, because of the lack of men.

There is a trend, although it is perhaps as yet slight, toward the centralizing of the more skilled service and overhauling in the larger shops in the larger cities, and whether or not this will work out to the benefit of the trade is something that individual dealers themselves will have to determine.

For instance, in a small town outside Chicago there may be a small dealer who has on his list of customers a man who wants his car overhauled, or perhaps this dealer has taken in a car which needs overhauling before he can sell it. If he can have it overhauled he can realize a bigger profit on it than if he sells it "as is."

This dealer has not facilities for doing the work; there may be a need for autogenous welding or repair to the electrical system. In days gone by the dealer might have more nearly approximated 100 per cent perfection on a job of this kind, but with things the way they are to-day he is handicapped because many of his skilled men have left him and he cannot get any more.

The distributer in the big city, however, is better equipped to handle this work. In some cases the smaller dealers are sending these jobs into the big city shops to have them done. Thus far, it does not appear that any of the big city service station operators have canvassed the outlying trade for work of this kind. The service stations themselves are handicapped for lack of men and some of them doubtless do not want to go to too great trouble in building up organizations unless they are going to be able to keep them busy.

A jobber in Minneapolis is building up a system to-day whereby he has electrical repair work shipped in to him from Minnesota and the Dakotas. The jobber's service department of expert men fixes this work up and ships it back to the outlying dealer by parcel post. This gives the dealer service quicker than he could effect it in his own shop and gives him much better work. Incidentally, he makes a profit without doing anything except pack the electrical apparatus and ship it

There are possibilities in this that are worth reflection. It may not become standard practice during coming months, but it is a movement to which the trade should not turn deaf ears, because it is impossible to-day to tell the exact system under which we shall be operating to-morrow. The time may come when the distributer of goods will also be a distributer of labor and service. Who knows?

Women Salesmen

AS the nation's man power is turned into war and its allied work, women must be more and more used in the motor car trade.

One of their possible positions is that of the sale of the product. They can sell cars and accessories, and possibly trucks, tractors and farm lighting systems. The latter three they may possibly not sell so well—but that selling is something they can well do cannot be disputed. Undoubtedly the man is the dealer's choice, but when there are no men women must be used.

One important consideration should be borne in mind, and that is that the employment of women should not be undertaken solely for advertising purposes. Female employment has gone far beyond that stage. Of course, if there is publicity to be obtained through the employment of women salesmen and other workers it need not be passed up, but the female workers should not be taken on for advertising purposes alone.

There are some women who consider their entry into commerce as an adventure—which it is—and one not to be taken too seriously, but the dealer should check this impression before it takes too firm root. He should select types of women who possess real ability. He should require earnestness and a desire to succeed on merit alone.

He should hire women on the same business basis that he has in the past hired men. If he is progressive enough to train women for real work in these changing times he will get sufficient free advertising, but he will err and pay the price in the future if he considers female labor something to be engaged purely as a means of advertising. He should require women who seek employment in men's work to be serious about it—and he should be serious about it himself.

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Letters from Readers

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

Explaining the Trade Acceptance

Editor Motor World: Enclosed is a letter that is being sent to its district sales managers by a New England rubber company, explaining the trade acceptance, and why it is a business essential at this time. Perhaps Motor World readers would be interested in it. —Reader.

What the Trade Acceptance Is

District Sales Managers:
Salesmen:
Branch Office Managers:

We are sending out trade acceptances with our statements and you will be asked why we are changing our methods from the open book account to the trade acceptance. So that you can explain and educate our dealers, I want to give you the reasons why the trade acceptance method is necessary.

Why is there not enough currency in this country to finance both business and the war?

You probably have seen in the papers that the first year of the war cost the United States $12,000,000,000, and that in addition we loaned $9,000,000,000 to the Allies. Government war payments are made in currency, and while only 10 per cent approximately of the $9,000,000,000 loaned to the Allies was sent abroad—yet $8,000,000,000 of the loans to the Allies was spent in this country. Twenty-one billions temporarily taken out of the currency of the country. When put back in, it made what we call "business booming," great activity, and a great demand for merchandise, but, also, an increased demand for currency to finance the making of the merchandise.

Banks Are Using Currency

In ordinary times, when currency is not being drawn upon to finance the war, the banks have it to loan. But to-day the Government has taken the currency in the banks for war purposes. They needed currency to pay their bills before they received the income tax receipts in June, so they took the currency from the banks and gave them instead what they call Treasury Certificates, which were Government promises to pay back to the banks when the income tax payments were made. This took away the supply of currency in the banks and left them with Government promises to pay. So, naturally, the banks do not have the currency to advance to manufacturers under the old system.

The war must be financed first.

We all desire the Government to pay its war bills in currency.

Business must be done on credit.

All possible currency must be released from commercial business to enable the Government to pay its war bills.

How does the open book account tie up currency?

Take the figures from the 1916 Department of Commerce Statistics on the manufacturers of the United States. We find that a manufacturer (to reduce to small figures) had an average capital of $22. He paid $14 for materials and $5 for labor etc., in ten days. He sold the manufactured article to the dealer for $24 on terms averaging payment in 75 days. You can see that he had $19 which he had paid out for materials and labor, tied up for 65 days before the dealer paid him.

Under the banking laws, a manufacturer can borrow 50 per cent of the $24 sold, or $12, on his account with the dealer. He can borrow 10 per cent of his capital, or $2, making a total of $14, but leaving tied up for 60 days or more $5 in currency. Multiply this by 1,000,000,000 and there are $5,000,000,000 in currency tied up in the open book account used by manufacturers for the extension of datings to dealers.

Keep Money Circulating

To go further, the $14 which the manufacturer has borrowed from the bank cannot pass along to the Federal Reserve system. Multiply this by 1,000,000,000 and you have $14,000,000,000, or a total of $19,000,000,000, tied up for commercial business purposes—not available for war currency.

How does the trade acceptance release currency?

It does the whole transaction on credit. The manufacturer pays $14 for his materials, $5 for his labor, etc., just as before, and he sells to the dealer for $24, but the dealer signs a trade acceptance. This trade acceptance is not a note nor a draft. It is simply a record of the business transaction which has taken place, to which both the manufacturer and the dealer sign their names.

The dealer signs to the fact that the manufacturer has sold him some goods, that the terms are a certain length of time, and that he expects to pay on the due date at a certain bank. The manufacturer signs to the effect that the dealer has purchased goods, that the terms are such a time, that he knows the dealer, and that he believes the dealer will pay on the due date. This transfers the transaction immediately to negotiable paper.

Under the trade acceptance law the banks can loan on this paper the whole $24, so that no currency is tied up by the manufacturer in the account with the dealer. The banks will give him not currency but a credit of $24, because they can turn it over to the Federal Reserve bank and obtain $24 in credit and the Federal Reserve bank holds the paper until the dealer makes payment at the bank.

There isn't a cent of currency passed in the whole transaction, simply credits, and the currency tied up in the old open book account method has been released for the payment of war bills.

What happens if the dealer does not meet his trade acceptance?

If the trade acceptance is not marked by the manufacturer, "No protest" when discounted, it will be handled by the bank of the dealer just like a note and the dealer will have to pay protest fee. If it is marked "no protest" by the manufacturer, the manufacturer has to pay the acceptance, and then any extension of time for the dealer should be handled by an interest bearing note proposition—not by another acceptance. An acceptance should never be used for an extension of an account.

On the other hand, when a manufacturer signs an acceptance with the dealer, he is doing it because he believes that the dealer

How an Australian Displays Accessories



This is the place of business of H. V. Duncan & Co., Brisbane, Australia, and it would be hard to find a better arranged, more attractive accessory store which reflects a clearer understanding of the principles of merchandising

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is going to pay on the due date, practically guaranteeing that he is a good merchandiser, and if the dealer doesn't meet the obligation on the due date he weakens his credit standing both with the manufacturer and his bank.

In our particular case, if the dealer does not pay the trade acceptance on the due date, he loses the 5 per cent cash discount and we would expect a note for the amount of the acceptance, plus 5 per cent, bearing interest for an agreed upon amount of extension. But the customer would weaken his credit standing with us.

We are not asking dealers to sign this acceptance because we are afraid of their credit.

We are not using it as a club to collect money.

We are not asking them to sign because it will help them directly, but because the country must come to the utmost conservation of its currency and do business by credit and, in this way, have business do its bit toward winning the war.

We are not saying that a dealer must sign this acceptance. The Government may force us to say this a little later. All we are asking a dealer to do is to get in line with the foremost business men of the country, help us release the currency from business to the paying of war bills and—let us do our bit toward winning the war.

Sane Selling

Editor Motor World: I am enclosing what seems to me a mighty important dealer's letter. It discusses a number of fundamental points most valuable for each automobile dealer to know, and being generous of heart, we are willing to contribute this to the industry. You may, after reading it, find it worthy of reproducing.

These letters are sent out weekly by W. S. Sills, general manager of sales of our company. The letters go to 4000 Chevrolet representatives. Nearly 100 of them have been sent in the last year and a half.—Yours very truly, J. H. Newmark, Manager Advertising Division, General Sales Department, Chevrolet Motor Co., New York.

To Chevrolet Dealers

Methods of automobile salesmanship are gradually changing for the better. Honesty in statement is being practised. The truth is being told oftener. And gradually, loose, misleading claims will no longer be made.

All these are good signs. They mean more to the average dealer than he might, at first glance, imagine.

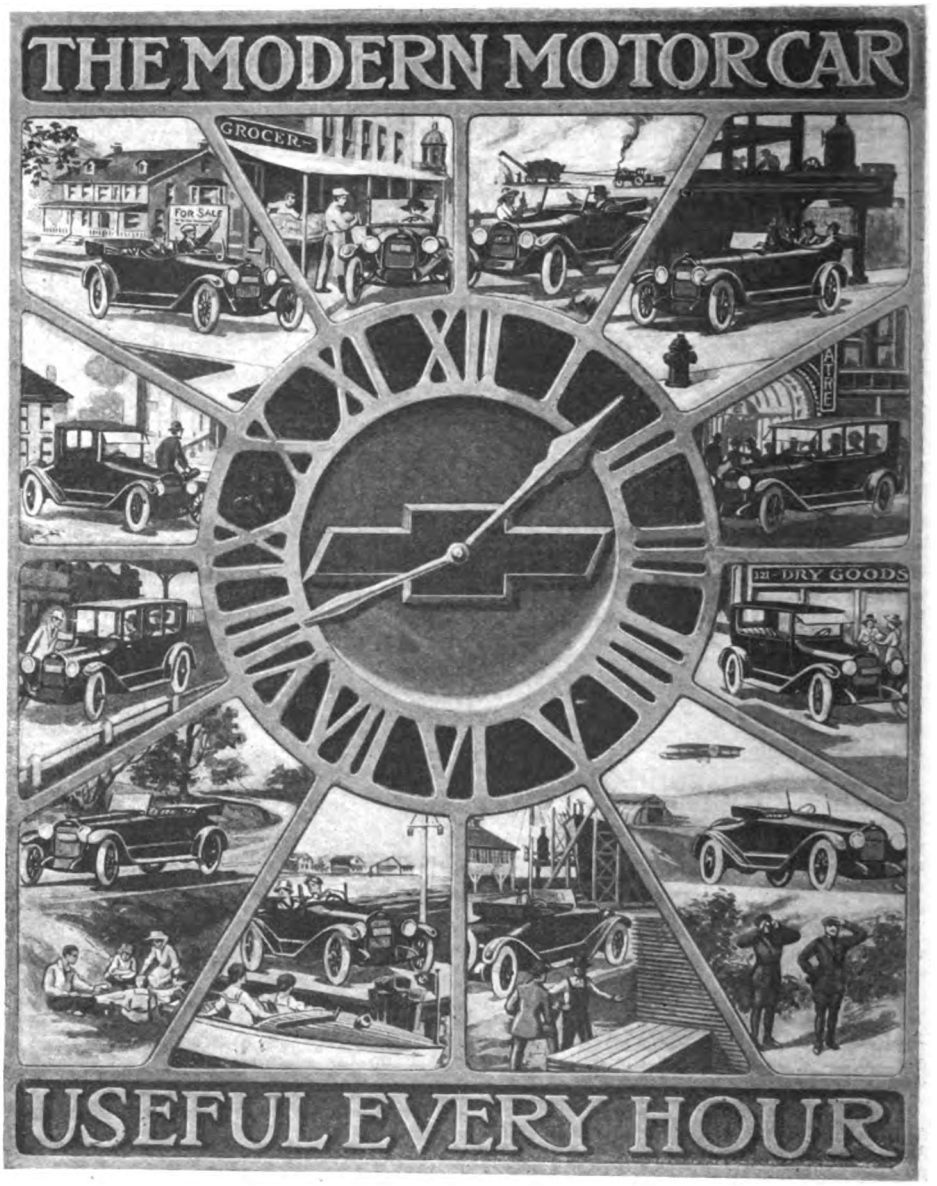
If the prospective purchaser is not told in the beginning what to expect, he will not look for it. If he is not told in the first place that his car will travel thirty miles on a gallon of gasoline, he will not be disappointed if it does not happen—and he will not blame you.

His disappointment came from being "taken in" by the statement, rather than from the failure of the car to do or act as promised. What is true of this statement is true of many others.

You must remember that in the beginning the prospective purchaser did not have any idea what a car was supposed to do. What the motorist was taught to expect of his car was what the salesman told him.

Please give that point serious thought.

A truer statement than that, and one which means more to the average dealer, has never been made. Your "profit and loss" statement will show it clearly.



By way of emphasizing the all-around utility of the motor car, the Chevrolet Motor Co. is sending this poster to its dealers. Dealers who display it will help along in driving home the fact of the absolute necessity of the car

We all remember the time when a salesman would describe an automobile as a reguler perpetual motion machine—that it would keep "going and going"—"with hardly a cent for maintenance expense," and that "it hardly ever would be necessary to buy any parts"—and all sorts of similar statements.

He was promising something that never has happened to any piece of machinery ever made.

We know, and the public knows, too, that metal against metal means friction—that friction means wear—and wear means replacement. More automobile owners are beginning to know that. But it is important that they know that from the day the car is purchased. For if they do, your service problem will be largely solved, as the owner would not expect treatment he was not entitled to receive.

Yours very truly,
W. S. SILLS, General Manager of Sales.

Tractor Efficiency

IN considering tractor efficiency and economy for him the farmer is going to look at the tractor and the implement which it pulls as a unit. It is not the tractor which does the work. It merely provides the power. Yet when the plowing, or the seeding, or the cutting is not being done satisfactorily the blame is going to be laid on the tractor. This may not be right nor just, but it is going to happen just the same. It already has happened in no end of cases, and the tractor has been condemned through no real fault of its own.

The dealer who handles tractors never can forget the probability of this for a minute.

The man who unthinkingly overloads his wagon and gets stuck in the mud cusses his team. The man whose engine plow misbehaves will take it out on the tractor. This is certain and inevitable. For this reason the man who sells tractors must possess the knowledge and ability to distinguish between tractor troubles and implement troubles, and by being able to correct the latter prevent the former. *And this is some job—but not too big a job for the automotive dealer.*

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Who Will Awaken the Farmer?

By Ben S. Brown

A TRACTOR salesman got his dander up while in an agricultural community during a Liberty Loan campaign.

He walked into a bunch of middle-aged and elderly but husky men, mostly retired farmers, while a horseshoe game was in progress. He stopped the game and told a few things.

He started with the Liberty Loan, and told why they should subscribe. He mentioned that he was going across this summer—and was wondering whether the fight was worth while if these fellows who were buying bonds so niggardly did not want to help.

Then he touched on the food situation and *roasted them with very plain language for allowing the whole nation, and the world, to pinch and scrimp, while they, expert food producers, neglected the jobs which they could do so well—which had given them a competence—and* PITCHED HORSESHOES!

He was just going good by this time so he pitched in on the labor problem, suggesting that most of them looked able still to do a good day's work.

This tractor salesman had been knocking around that community for a day or so—and he has good ears. He learned that the acreage in crops was not going to be up to normal this year, and that several of the farmers of the community had said that they were not going to put in wheat this fall and would probably rent their farms.

Farmers Are Listless

The apparent listless interest of the farmers in food production had seemed to him heinous and he told the assembly on the horseshoe ground what he thought of it.

He said every retired farmer who owned land ought to go out on it and use the very best up-to-date helps he could possibly secure to get the maximum production from his farm.

Whether the farm was rented or was being run by a member of the family or by a hired manager, the owner ought to consider it his personal responsibility to see that every possible aid to the greatest production were put on that farm.

Did the retired farmers mob the tractor salesmen? They did not.

Did the local dealer handling the tractor faint? He did not—he took the tractor salesman around the corner and hugged him.

For these were things that he had wanted to say. But he had taken his cue in handling the local situation from the bankers and other business men who had the old-fashioned, diplomatc conservatism which prevents a merchant from doing or saying anything which might by any stretch of a comprehensive imagination offend a possible customer.

Some wallop! The tractor salesman who bawled out this bunch of farmers knew what he was talking about; and he handed it to these farmers straight.

Why should they pitch horseshoes while all the rest of the world is at war? But read the article.—EDITOR.

Such things as this tractor salesman said have got to be said in some agricultural communities. There is no blinking the fact that there are hundreds of farmers who have not grasped the gravity of this nation's, and the world's, predicament. If they do know that we are at war they seem to think that there will be plenty to fight it without their troubling themselves.

Thousands and thousands of farmers have made many sacrifices, quite as severe sacrifices as any people in the city. They have planted when they felt sure they would lose money on the crop. They have given of their means and of their time. They have tried to meet the loyalty of urban dwellers' abstention half way.

The other thousands may throw this country into a food famine and so reduce the needed production that possibly this country will for years have inadequate food supply. This right at a time when they have every encouragement and opportunity to increase the food production, shorten the war and establish agriculture on a level which it otherwise might not have reached for many years.

But who is going to waken these farmers?

The agricultural department is doing wonderful work; but it is laboring under the disadvantage that farmers have for so many years left the study of its suggestions to their sons—and too often the sons did not go back to the farm. Farmers just naturally get into the habit of reading or listening to agricultural department suggestions as matters of casual interest and not as something they should themselves immediately adopt.

And perhaps the propaganda with reference to other war needs that representatives of the agricultural department present is received in somewhat the same spirit. Agricultural department representatives must have the strongest kind of co-operation from all business interests and all citizens of every community where they are working to promote better farm production.

Who's going to waken the farmers?

The local business men who have gained inspiration on the utmost support of the government in this crisis from their city connections or through their own mental alertness and devotion to country may do so.

In the cities there are numerous instances where business men have entirely disregarded any retroactive effect upon themselves of their most determined campaign for war enterprises. Committees of business men have called upon citizens who in many instances are the customers of the committee members, and have read the riot act to them on contributing to funds or subscribing to Liberty Loans or giving some of their time to war work. City bankers have forgotten the conventionalities of their profession and often tell their customers where to get off.

Dealer Is the Man

Possibly the country bankers will eventually take the same position.

But there is one class of people who seemed to be called by some providential fate to this duty, that is the SALESMEN AND REPRESENTATIVES OF THE AUTOMOTIVE INDUSTRY.

For one thing the automobile, tractor or truck salesman has the nerve to tell the truth. That's what one tractor salesman said. He was thinking chiefly of arousing the farmers to their duty as citizens. It was only after the question was asked that he made any comment on the aspect of better mechanical equipment for larger production.

Perhaps he hadn't thought of that, because it was self-evident that if the farmer is going to produce more he must have better equipment.

The tractor salesman who made the speech to the horseshoe pitchers wasn't trying to sell tractors. He hadn't cooked up the speech as an introduction to a sales talk on the advantage and necessity of automotive equipment to get the better production. He was really in earnest about the duty of every citizen to do his best for the country.

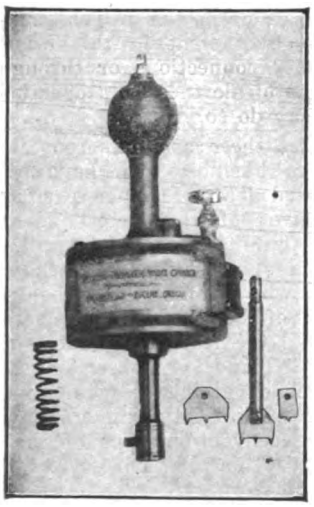
But when he did later have chances to make sales talks he didn't go about it as though he were trying to dispose of a white elephant.

He very sincerely believed that the farmer ought to produce more crops and do it more economically; that the tractor was a godsend to save the farmer from the hampering effects of labor shortage. He probably hadn't used any more energy by making his strenuous appeal on patriotism than he has used up in straight talks on tractors on other occasions.

But he was a better tractor salesman because he was pleading for his country and for democracy.

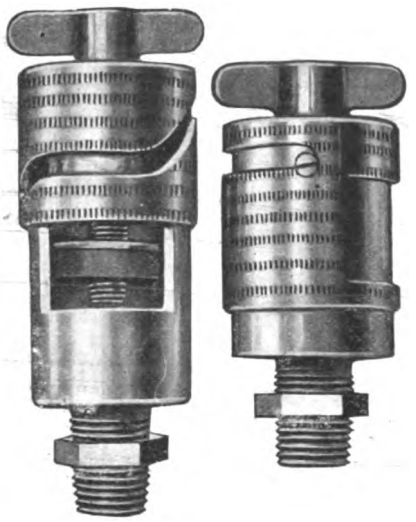
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Accessories



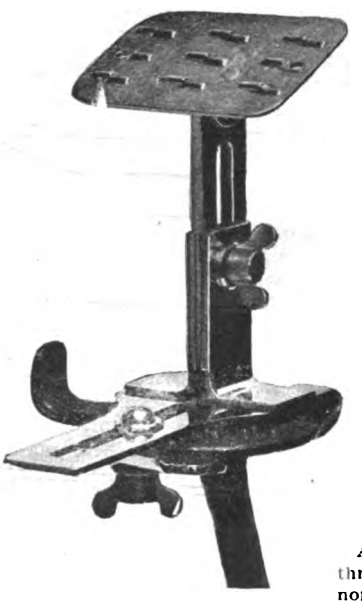
VELTUM PNEUMATIC VALVE GRINDER

An oscillating valve grinder operated by compressed air from the tire pumping outfit or any other available supply. The body is an aluminum casting ground to an airtight joint and using no packing. This case contains two opposed cylinders, a connecting rod for each and a crankshaft. Air is admitted by a three-port valve which admits air to the cylinders alternately. Develops ¼ hp. on 80 lb. of air and will operate on any pressure from 15 to 100 lb. Price complete with three different style bits and a spring to put under the valves, list price, $30.—Warnock-Wirth Sales Co., Sioux City, Ia.



NORECA GREASE GUN-KUP

A grease cup that is also a grease gun. When open it holds twice as much as when closed. The act of closing with a simple half turn forces one cupful of grease at once in the bearing, leaving a cupful to be injected with the screw plunger as needed. It fills from the side through a square hole which is closed by turning the sleeve on the shell a half turn. Made of steel, nickel plated, capacity 1/3 oz., ⅛ in. pipe thread, price, 65 cents.—Greist Mfg. Co., New Haven, Conn.



UNIVERSAL EXTENSION PEDAL

An adjustable extension pedal to be attached to the brake and clutch pedals with a clamp which slides so that the pedal can be moved forward or backward and rigidly fixed in that position. One model fits all shapes and makes of pedals. Price $4 per set of two, or $5 if fitted with rubber cushions.—Rich Mfg. Co., 1777 Broadway, New York.



NORECA SIDE-FILLING GREASE CUP

A grease cup that is filled through the side, the cap being non-removable, and the outer cylinder of the cup having a square opening which coincides with a similar square opening in the shell when the cup is turned to open it. A half turn opens or closes the cup and a multiple seal with an expanding sleeve prevents the grease from oozing out. A locknut locks the cup in the threaded hole provided for it. Made of steel, nickel plated, capacity 1/6 oz., ⅛ in. pipe thread, price 65 cents.—Greist Mfg. Co., New Haven, Conn.



SECURITY SWITCH LOCK

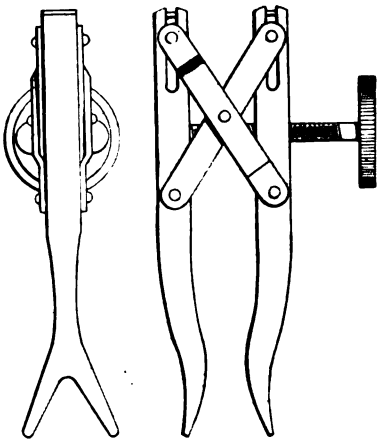
A switch lock for Ford cars that is applied over the regular Ford switch by removing the nameplate on the molded switch, or removing the complete metal covering on the all-steel switch on the 1918 model. The housing of the switch lock is applied in place of either one of these, by three screws. When the switch is locked, metal plates come out and cover the screw heads so that they cannot be removed. The action of locking the switch grounds all four coils so that they cannot be used even if another battery is employed. A non-pickable barrel lock with two keys is part of the housing and the lock is finished in black enamel and nickel. Price $3.25.—New York Coil Co., 338-340 Pearl Street, New York.





DISPLAY FOR UNIVERSAL WRENCHES

A window or counter display stand to hold four Universal grease cup wrenches. One of these is included in each package of wrenches. No charge is made.—Prismolite Co., Columbus, Ohio.



EVANS VALVE TOOL

The feature of this tool is that it gives a straight lift on the valve spring, thus releasing the cup so that it slides freely over the valve stem. It will fit practically any engine. Price $1.25.—Leon Evans, Loveland, Col.

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The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer.

THE LAW

By George F. Kaiser

As It Applies to
Dealers
Repairmen
Garagemen

Should You Lie When You Trade?

IN a recent California case it was decided that although the buyer of an automobile is not precluded from setting up misrepresentation as to the year a car was manufactured, by reason of having had it examined to ascertain its condition, the buyer cannot claim oral misrepresentation when the contract provides, "All promises, verbal understandings or agreements of any kind pertaining to this purchase not specified herein are expressly waived."

Suit was started against the dealer for damages for misrepresentation by its agent as to the year the car was manufactured.

It seems that the buyer had negotiated with the agent for the purchase of a used car which was offered for $1,800. The agent stated that it was manufactured in 1913. It afterward appeared that it actually had been manufactured in 1912. The car was examined by the buyer's mechanics by agreement and the car and the batteries were found to be in good condition and the mechanics reported that it looked like "a good buy." The buyer offered $1,700 for the car, which was accepted, and a written contract of sale was entered into.

The dealer contended that in view of the fact that the buyer had had the car examined he could not object to the date of manufacture, but the court held that the examination was had merely to ascertain the car's condition and not the date when it was manufactured. Regarding the dealer's further contention that he was not bound by anything that did not appear in the contract, the court held that, in view of the fact that the contract was a written one and contained the clause set out above, providing that no agreements except those contained in the contract should be binding on the parties, representations by the agent as to the year the car was manufactured were not material and the dealer would not be bound by them.—Munn vs. Anthony, 171 Pac. (Cal.) 1082.

Get Perm't to Use Photographs

While stopping at a garage the other day the proprietor came up and showed me a new advertising folder which he had drawn up to send out to prospective buyers. The folder was well gotten up and attractively printed. It also contained a picture of a family seated in one of the cars sold by the dealer.

I complimented him on the folder and then, just as a matter of course, asked how he came to have the picture. He replied in a casual way that he had taken the picture himself, having taken a snapshot one day when the car had been leaving his service station. I asked him if the car owner would not object to having the picture of his family used for advertising purposes. He replied, "Oh, no, I don't think he will object because he is very good natured."

An assumption of this kind on the part of a dealer is very foolish and is often very dangerous because it may lead to unlooked for results. In a number of states, among them New York, a person has no right to use another person's photograph for advertising purposes unless he first procures written permission to do so. *It is not enough to get verbal permission to use another's photograph for advertising purposes.*

There have been a number of cases taken to court where suit was brought against concerns which used photographs without permission, and in every case where the facts were established judgment was rendered for the persons whose photograph was used. The New York statute on this matter provides as follows:

Right of Privacy—A person, firm or corporation that uses for advertising purposes, or for the purpose of trade, the name, portrait or picture of any living person without having first obtained the written consent of such person, or, if a minor, of his parent or guardian, is guilty of a misdemeanor.

Any person whose name, portrait or picture is used within this state for advertising purposes, or for the purpose of trade, without the written consent first obtained as above provided, may maintain an equitable action in the Supreme Court of this state against the person, firm or corporation so using his name, portrait or picture, to prevent and restrain the use thereof; and may also sue and recover damages for any injuries sustained by reason of such use; and if the defendant shall have knowingly used such person's name, portrait or picture in such manner as is forbidden or declared to be unlawful by the last section, the jury, in its discretion, may award exemplary damages.

But nothing contained in this act shall be so construed as to prevent any person, firm or corporation practising the profession of photography from exhibiting in or about his or its establishment specimens of the work of such establishment, unless the same is continued by such persons, firm or corporation after written notice objecting thereto has been given by the person portrayed.

Garage Contract

I was recently asked for a contract which a garageman could use for customers whose cars are stored, repaired or furnished with supplies. The following form will be found to fill the want:

June 1, 1918.

To the Standard Garage,
1000 Broadway.

You are hereby authorized to provide storage and furnish necessary supplies, labor and material for my car as stated on the reverse side of this order. I warrant that I am the owner of the said car and that the license plates are registered in my name, and I hereby consent that you have the right of lien and sale in the manner provided for by Section 184 of the Lien Law (Consolidated Laws of New York), including the right to retain or retake possession of said car in case of default in payment of any bill or bills.

JOHN SMITH,
Owner
100 West 100th St., N. Y. City.

BACK OF CONTRACT

John Smith,
100 West 100th Street,
New York City.
Owner of car, John Smith.
Residence address, 1179 Broadway.
Business address, Broadway and Wall Street.
Business telephone, Wall 99.
Make of car, Packard; License, No. 1999, New York.
Service ordered, storage, daily washing and polishing.
Rate per month, $35.
Bills are to be sent to 100 West 100th Street.
Should anyone other than the owner of the car be allowed to use same? No.
Storage commenced, June 1, 1918.
Storage discontinued.
Account opened, June 1, 1918.
Account closed.
Miscellaneous.

This form is, I believe, in common use in Detroit.

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Drive-Away Bureau

(*Continued from page* 13)

by south, pike into Crawfordsville. This is another good town and with good service.

Out of here get your bearings to Rockville, which will be an angle of west by south pike, several turns, but inquire often so you will hold your way correctly.

When you reach Rockville you are then on the Ocean to Ocean trail, with markings of white and red at each turn, so you will have no trouble holding your route.

On west out of Rockville, with a slight angle north, you will cross the Wabash River at Montezuma, then straight on west, crossing the Indiana and Illinois state lines about a mile north of Dana, then on west to Chrisman, Ill. This is not a large town but a very neat and pretty place, with ample service for not too large a crowd.

Leave Chrisman, go north to edge of town, you will come to a brick highway, turn west on this and on to Hume.

You will find these nice level roads, being improved and made into a good gravel highway. Straight through Hume and Tuscola and into Decatur. This is a good manufacturing city, up to date and progressive. Good accommodations.

Leave the circle and head west on a good pike for Springfield, going through Illiopolis, Riverton and several other small towns. You will find some dirt roads but no hills, and in favorable weather a good driving road.

Reaching Springfield you will find a large city and good service with numerous hotels and garages.

The next large town you go through will be Jacksonville, then head for Hannibal, Mo. You will cross the Illinois River, and there you will hit the first large hills of Illinois. After you have crossed the river and up on the flat prairie again you will have a good level run until you reach the hilly country approaching the Mississippi River.

Crossing the great river on the bridge you will find Hannibal a hustling river city with the best of hotel and garage service.

Leave Hannibal and take the marked road to Mexico, which will angle south by west and with no hills of any consequence, some gravel and in ordinary weather a mighty nice drive.

Mexico you will find up to date and with good service at numerous hotels. Leaving Mexico your road will take you west and south into Columbia, which is one of the beauty spots in old Missouri. This is quite a college town, and you will note the newness of the place. I didn't see an old residence, nothing but beautiful new-looking homes and well-kept grounds.

Go out Main Street, south cross the railroad, and you will hit a concrete street leading for miles up one hill and down the other. This is one place, if you are not very conservative, you will let her out to almost the last notch. Your next large town will be Boonville.

Now if you are going on to Kansas City, don't cross the Missouri River here but go to Glasgow, but Mr. Collinson was going to Arkansas City, and he can save quite a number of long miles by leaving the Kansas City trail here, take the ferry, cross the river, out South Main Street, over the long winding hill, on to Bunceton and to Sedalia.

From Sedalia take the pike leading to Windsor, about 20 miles south and a little west; elegant prairie road and marked with state road signs. From Windsor your trail keeps south by west to Clinton, then Nevada.

Crossing the Kansas and Missouri line at the big hill, then into Ft. Scott, Kan.

From Ft. Scott you will have a fine drive to Independence, where you can get the very best Kansas affords at two of the largest hotels in any town of its size in the state.

Here you will strike the famous Oil Belt Route, which is a grand drive.

Leaving the city you will have a level road for about 18 miles, then you will come to the east ridge of the Flint Hills, where it will wind around the bad places and take you past ranches, then about 20 miles of prairie drive before you hit the hills again east of Sedan, Kan.

It is quite hilly approaching and leaving Sedan, but nevertheless the road is mighty good.

Out from Sedan, about a mile, you cross the Big Caney River, then a little ways beyond you will come to a hill that will show what your car can do in "climbing on high." The hill is on a swing to the right and then to the left, starting with a steep, hard grade at first, then terminating into a steady, hard pull for over a mile. If you make it you will have to "hit her hard" at the beginning. You will go through the small town of Wauneta, over some more prairie good roads, then down a dangerous winding hill into the Little Caney bottoms across the bridge, south then west into Cedarvale.

Straight through, south cross the Santa Fe Railroad tracks just east of the depot, then your road turns west. A grand, rich farming country with scores of cattle, and field after field of alfalfa.

Four miles west at the famous J. J. Wilson ranch turn north for about a mile, then on west over the big hill at the Guthrie ranch, through the little town of Hoosier, turn north for about three miles, then straight into Dexter about eight miles away.

This little town, as you view it from the top of the big hill just before you start down into the valley of the Grouse Creek, is one of the prettiest sights along the way.

To cross the railroad watch your Oil Belt Route markings, for you keep west then north, then west, cross the iron bridge, turn sharp to the north, then around the large hill, and you will find the road a dandy with the heavy grade developed gradually, and before you are aware you are again on the level prairie and on west to the cross roads, then north for about three miles and then straight west with a few swings around some heavy hills on through Tisdale, and then you will begin to drop over a small hill or two and then with a nice gradual decline into the valley of Walnut Creek and on into Winfield. This is a beautiful, shady city, with good roads leading every direction. Arkansas City is about 14 miles southwest; Wichita northwest, and the oil fields of Eldorado and Augusta, in Butler County, north.—G. H. Schultz, stockman for William Small Co., 112 West North Street, Indianapolis, Ind.

Girl Leaving Washington

WASHINGTON, May 31—Acceptance of the resignation of Christian Girl, director of production of the Motor Transport Section, was made Saturday, May 25. Mr. Girl, who has been trying to obtain an acceptance of his resignation for several weeks, will leave Washington shortly to return to Cleveland and assume his duties as president of the Standard Parts Co. Mr. Girl filed his resignation last January, when he foresaw that his work would be completed by May 1.

Packard Shipped Its Thousandth Liberty Engine

DETROIT, June 5—The Packard Motor Car Co. shipped its one thousandth Liberty engine last week, just a year to a day from the sending to Washington of blue prints and parts which formed the start of the Liberty motor design. The event was celebrated by the men who, within a year, have had the successive responsibilities of producing the first Liberty engine by hand, the first Liberty engine to fly, the first Liberty engine made from tools designed for quantity output, and now their first thousand perfected engines.

The crating of the thousandth engine was witnessed by the engineer who on May 29, 1917, took down to Washington a trunk, checked as personal baggage, which contained complete blue prints and an all steel-cylinder of an aviation engine. It was the design of this engine, representing at that time more than two years of development work, from which Lieut.-Col. J. G. Vincent, then the Packard chief engineer, and E. J. Hall evolved the design of the Liberty engine.

Upon the completion of Engine No. 1000, a telegram was sent by the two Liberty engine builders who are now in production to President Wilson and Secretary Baker. Congratulations came back praising the "most commendable zeal and spirit with which this task has been accomplished."

Waltman Joins Hupp Motor

DETROIT, June 3—C. M. Waltman, formerly general superintendent of the Weidley Motors Co., has been appointed assistant to the vice-president of the Hupp Motor Car Corp. in charge of production.

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Finish of the 10-mile at Sheepshead, May 30

De Palma Takes Harkness Race

Final Check of Scores Gives Packard Pilot First at 102 M.P.H.

Harkness Trophy Race, 100 Miles

Driver and Car	Time	Handicap
Ralph De Palma, Packard	58:21	1:01
Tom Milton, Duesenberg	58:31	2:05
Barney Oldfield, Golden Submarine	59:20 1-5	2:10
Ed. Hearne, Frontenac	1:00:52	2:12
Denny Hickey, Hudson	1:01:40 4/5	3:10
Omar Toft, Miller	1:03:23	2:35
Louis Chevrolet, Frontenac	1:03:35	Scratch
I. P. Fetterman, Peerless	1:04:40	4:00

SHEEPSHEAD BAY SPEEDWAY, June 1—Ralph De Palma took the honors at the Harkness Trophy race here to-day with a Packard, and Louis Chevrolet accounted for the final heat of the Futurity handicap. De Palma finished the 100 miles in 58:21, which is at the rate of a little better than 102 m.p.h., and is quite a bit slower than the time made by Chevrolet last year when he won in 54:20.98, or at 110 m.p.h.

The program was witnessed by one of the biggest crowds that has packed the inclosure. The grandstand was filled and it is estimated that between 40,000 and 45,000 persons saw the races. This is the first time that the race has been run on the handicap basis.

De Palma's most serious rivals were Resta, who went out at the end of 54 miles with a broken piston; Ralph Mulford who quit at 68 miles with a broken oil feed connection; and Chevrolet who stopped for tires three times and lost so much time he was only able to finish seventh.

After the 28th lap it was a great race. It was so great in fact that the timers and scorers were all at sea as regards results and a groan of disappointment went up when Tommy Milton was the first to get the checkered flag. A later check of the score sheets revealed that De Palma had beaten him by the narrow margin of 10 sec., which is not much on paper but which is nearly quarter a lap of the track.

Futurity Handicap—First Heat

Ralph Mulford	Frontenac	6:10 2/5
Tom Milton	Duesenberg	....
Jack Le Cain	De Iago	....

Second Heat

Dario Resta	Resta	6:07
Ed. Hearne	Duesenberg	....
Louis Chevrolet	Frontenac	....

Final Heat

Louis Chevrolet	Frontenac	5:57 2/5
Ed Hearne	Duesenberg	....
Dario Resta	Resta	....
Tom Milton	Duesenberg	....

Early in the race it became apparent that it was to be a sort of three-sided duel between De Palma, Chevrolet and Resta, with a possibility of Mulford springing a surprise on any one of them. But the hopes of the crowd were dashed when Chevrolet commenced stopping for tires.

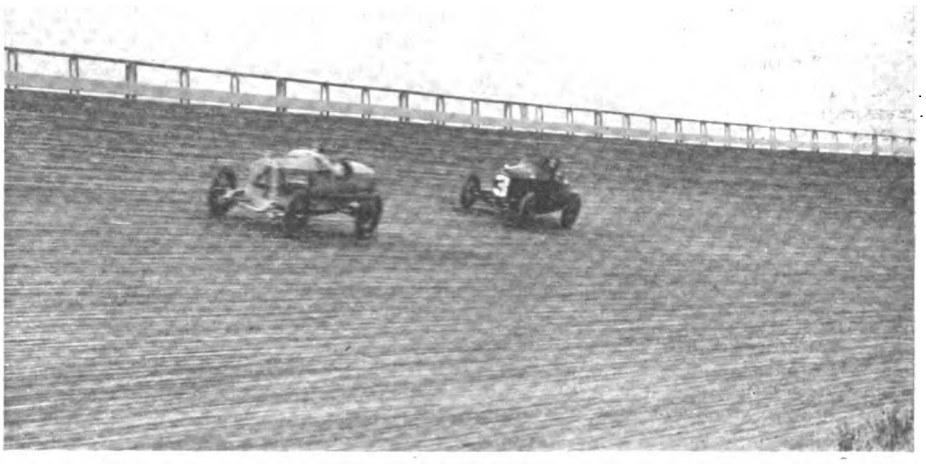
But whatever disappointment Chevrolet may have felt at losing the major event, was made up in part by his good work in the final heat of the Futurity Handicap. This he won in 5:57 2/5.

In the big event, the real fight was between De Palma and Tommy Milton. De Palma started with a handicap of 61 sec. whereas Milton had 2 min. and 5 sec., giving him a lead of 1 min. and 4 sec. which is practically a lap. With Chevrolet and Resta out of the way, De Palma went out after Milton. He was driving carefully and consistently, doing laps regularly as clockwork at 1:05 which is practically 110 m.p.h. But it was not until the 28th lap, or just about at the half-way post, that De Palma was able to get the Duesenberg pilot.

It was manifest that De Palma's Packard was quite a bit faster than Milton's Duesenberg, and immediately after he had passed Milton, De Palma slackened his pace and Milton hung within a dozen feet of his axle all through the rest of the race to within four laps of the finish. Then De Palma commenced increasing his lead and at the finish line had opened up a gap of nearly a lap between himself and Milton.

The veteran Barney Oldfield, driving his famous Golden Submarine, which is no longer a submarine because Barney could not breathe in its close atmosphere and amputated the egg effect, was always a dangerous contender. He went through the race without a stop, finishing in third place without any particular difficulty.

The real thrills came in the short races. The handicapping was good and it brought the cars almost together in the stretch. In the final heat, Chevrolet had driven into the leading position in three laps and at the finish had plenty to spare. De Palma looked like a contender in this heat, but pre-ignition so reduced his speed that he could not overcome Mulford's handicap.



De Palma, the winner, and Chevrolet, fighting it out on the bank at the turns

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America to Be Felt in Air Fighting by September 1

Present Indications Are That Planes Wil Be Coming Through in Quantity by Early Autumn

DETROIT, May 31—The United States will make itself felt materially in the air by Sept. 1, according to present indications in the factories in this vicinity. Liberty engine production is moving ahead at a rate which promises to see a great many of these engines in the air within 2 months, and a sufficient number of American planes equipped with either this engine or other engines by Sept. 1 to become a weighty factor in the supremacy of the air.

At the present time at least 1500 Liberty engines have been manufactured and shipped. Nearly 1000 of these have left the Packard factory, and 300 have been shipped from Lincoln Motors; General Motors, Ford, Trego and the other concerns are rapidly getting into quantity production.

The Fisher Body Co. is now in production on battle planes in addition to the large number of Dayton-Wright training planes turned out daily by this concern. Production in other manufacturing zones such as around New York where the Hispano-Suiza engine is being turned out at the factory in New Brunswick, N. J., and at the plant of the General Vehicle Co. in Long Island City, is also going ahead rapidly.

Curtiss Making Strides

All of these concerns are organizations which were not in airplane manufacture previous to the war. Plants like the Curtiss Aeroplane & Motor Corp. at Buffalo have been also making giant strides. Curtiss is in production in the Sunbeam engine, having a contract for 1000 of these with the British government. A small number of the engines have been manufactured and actual production should now come along rapidly. The second large contract for the Curtiss company is for 5000 type OX-5 eight-cylinder training engines for use in training planes at the several cantonments in this country. To take care of this contract, three buildings were constructed at Elmira; an assembling plant, a testing plant, and a take-down and re-assembling plant. The rate of delivery on these engines may be judged from the fact that in March the original schedule called for 700 engines, while 835 were actually delivered. In April the original schedule called for 800 engines and 1003 were delivered. During the months of May and June there will be 1000 of these each month, so that at the present time more than half of the 5000 have been completed.

For the United States Navy the Curtiss Aeroplane Company has developed a flying boat of the HS-2 type, this being a biplane with a 72 ft. span, having a ceiling of 1300 to 1400 ft. and a speed of 85 miles per hour. It uses one Liberty engine, this being of the navy type, in which the compression is slightly lower than that used for the army. This flying boat has already been successfully tested out and has given satisfaction to the naval officers stationed at the Curtiss plant.

Engine Characteristics

Various reports, which may or may not be authentic, regarding the Bristol type have been given out. Some of the aviators flying it regard it as tricky and rather unstable, due, it is claimed, to a down draft on the elevator caused by the upper plane.

One of the points regarding the Liberty engine which has to be carefully watched and which may require a change in design is that of the fire danger in starting. Owing to the large gas passages to accommodate the high speed of the engine, it is a rather difficult engine to start, requiring heavy priming. This, in starting, causes a flame to issue from the exhaust port, which is in close proximity to the plane. Recently at one of the tests at the Curtiss plant where the HS-2 type was being tried out the lower wing was set afire due to the flame from the exhaust port in starting, and a delay of over 2 hr. was necessitated while the wing was patched. Accidents of this kind are apt to result in precarious delays, and this is a matter which should receive consideration. After the engine is started, of course, the draft from the propeller draws the flame away from any of the structural parts of the machine, and, furthermore, when the mixture is correct there is no flame in the exhaust.

Potter Heads American Truck

NEWARK, OHIO, June 1—Col. Joseph D. Potter has been elected president of the American Motor Truck Co. The financial end of the business has been taken over by the R. L. Dollings Co. of Columbus. Col. Potter was formerly connected with the Kilbourne & Jacobs Mfg. Co., Columbus.

General Motors Buys St. Louis Site

ST. LOUIS, June 3—The General Motors Co. has bought a 105-acre tract known as the "Union Race Track" at Union Boulevard and Natural Bridge Road for a body factory and assembly plant. The immediate construction of a plant to cover 40 acres is planned. This announcement follows that of Russell E. Gardener, president of the Chevrolet Motor Car Co. of St. Louis, that he had sold his holdings in that company to the Chevrolet Motor Car Co. of New York, for $1,000,000. A manager representing the purchasing company will take charge of the plant Aug. 1.

The Chevrolet Motor Car Co. of St. Louis, formerly was the Banner Buggy Co., which was founded by Gardener and which became the largest factory of its kind in this section. It has been the body factory for the western assembly plants for Chevrolet cars and employs more than 1100 persons.

Opinions of Business in Detroit

DETROIT, May 31—In its trade letter the National Bank of Commerce, which is now checking Detroit business conditions every month with about 100 executives and credit men, gives a table which shows the comparison between the composite opinion as expressed in April and again in May, 1918. The following figures are the percentages of the total replies that each class was credited with:

Future business conditions:	April	May
Above normal..	29.03%	26.26%
Normal	38.72%	46.74%
Below normal..	32.25%	25.00%

Future business conditions:	April	May
Improving	61.40%	51.12%
Stationary	33 33%	35.55%
Declining	5.27%	13.33%

Receivership for Monroe

PONTIAC, MICH., May 31—At a meeting of the creditors of the Monroe Motor Car Co. held a few days ago a friendly receivership was decided on so that the company could continue until it was on its feet again. Robert T. Armstrong, Flint, an accessory manager and well known figure in General Motors, may be named receiver. It is stated that the joint claims of the Hess Spring & Axles Co., Cincinnati, and the Electric Auto-Light Co., Weinegar, Ohio, aggregate $380,000 and the company's liabilities total $538,000. The assets are said to be slightly less than the liabilities.

Cleveland Garage Owners Organize

CLEVELAND, June 1—The Garage Owners' Assn. of Cuyahoga County has been organized here, and headquarters have been established in the Olmsted Hotel. Semi-monthly meetings will be held at which there will be lectures on garage management, service, business accounting and other problems. The officers are: President, C. W. Wood of the Hough Avenue Garage; vice-president, J. E Dietrich, Lorain Avenue Garage; secretary, E. S. Crane, Brookside Garage, and treasurer, F. D. Cook of the Detroit Electric Service Station.

These Windows Were Clean

ST. LOUIS, June 3—Several Motor Row companies recently have installed show windows with no noticeable baseboard for the glass. Within a week prospective visitors have tried to walk through these windows, breaking glass in the showrooms of the Newell Motor Car Co. and the Rottersman Automobile and Truck Co.

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Michigan University Wants Motor Teachers

Unless It Gets More by June 15 It Can't Teach Mechanics for Uncle Sam

ANN ARBOR, MICH., May 31—Unless the University of Michigan gets more instructors before June 15 it will not have adequate facilities for teaching the 700 students who will be sent there by the War Department at that time for the purpose of being trained in automobile mechanics. The university is calling for thirty-five able gas engine men who because of their previous training are fitted to instruct students in automobile adjustment and repair work.

Besides the regular instruction staff, an additional thirty-five men will be required to train these men and inasmuch as the university's contract with the government is made on such a meager basis of profit, the way is opened to men who have foremanship qualifications and some experience in automobile work and who are either above the draft age or who are disqualified for active service, or exempt because of dependent families, to do a patriotic service at home.

Instruction to be given is in chassis repair, engine repair, carbureter repair and adjusting, and instruction in starting, lighting and ignition adjustment and repair. Two kinds of men are desired: experts, and men who have only a limited amount of knowledge about automobile building and repair, as a whole, but who do know well some one thing about an automobile.

American Commercial Car in Production

DETROIT, May 31—The American Commercial Car Co. will be ready in 2 weeks to make its first shipment of 1½-ton trucks, for which it has orders aggregating 100 vehicles. This company recently contracted for Fletcher carbureters as standard equipment.

Texans Society to Buy Ambulances

FORT WORTH, TEX., June 1—The Texans Beneficent Society expects to close contracts for 500 ambulances for field service at the battle front within 90 days. The organization is seeking specifications and prices on these. Literature should be addressed to H. E. Ferree, 610 West Broadway, Fort Worth.

Successful Truck Transport Routes

COLUMBUS, OHIO, June 1—J. F. Dewey, who has been operating motor truck transport routes out of Columbus to nearby towns and cities now has two trucks in service and another has been ordered. The business so far has grown to a considerable extent and Dewey is encouraged to open new routes. He now has three routes out of Columbus which are paying propositions. One of the routes runs through Columbus Center, Granville, Jacksontown, Newark, Kirkersville, Hebron, Etna, Wagram and Reynoldsburg. Another route runs from Columbus to Baltimore, Basil, Greencastle, Hookers, Lithopolis, Lancaster, Millersburg, Pleasantsville, Summerland Beach, Thurston and other towns. Still another route runs from Columbus to Worthington, Delaware, Dover, Marysville, Milford Center, Unionville, Plain City and Dublin. No announcement has been made as to the other route to be opened.

Grossman Using New Wrapper

NEW YORK, June 1—The Emil Grossman Mfg. Corp. is using a new kind of wrapper for Red Head Spark Plugs. This consists of a small sheet of wax paper on which is printed, in red, directions for tightening the terminal nut.

Motor Liverymen Organize

MILWAUKEE, June 1—The Milwaukee Motor Liverymen's Association has been organized by representatives of about thirty establishments in Milwaukee, with Robert W. Bauer, president; Jacob W. Endler, vice-president, and John F. Pergande, secretary-treasurer. The membership includes both liverymen and funeral directors operating liveries. Beginning to-day, charges for the use of hearses advanced $2 and a similar increase is made in 8-passenger limousines, so that hereafter the hearse will cost $12 and the limousine $10 for each funeral.

Kansas City and Red Cross

KANSAS CITY, June 1—As in the Third Liberty Loan campaign, the motor car dealers of Kansas City had no distinctive part in the Red Cross campaign. Nearly every retail establishment and distributing station, however, had representatives on the soliciting committees. J. Frank Martin, manager of the Buick branch in Kansas City, was chairman of the important branch house committee which secured the co-operation of Kansas City branches of foreign firms. There were many comments upon the effectiveness of this committee's work.

Want Big Representation

ST. LOUIS, June 3—President F. W. A. Vesper of the National Association of Automobile Dealers has sent a request to more than 50 dealers' associations asking that they send delegates to a meeting to be held at the La Salle Hotel in Chicago June 14 and 15. The call says that taxation, legislation, etc., will be questions to be considered.

Plans of Air-O-Flex

DETROIT, June 1—Air-O-Flex Automobile Corp. has purchased a small plant at 217 Franklin St. to manufacture its products and expects to begin activities along this line in 45 days. At first the company will manufacture complete trucks but later will confine its efforts to suspensions alone.

Milwaukee on Record for War Conservation

To Carry Out to the Limit the Ideas of the N.A.D.A. War Service Committee

MILWAUKEE, June 1—Members of the Milwaukee Automobile Dealers' Association, embracing practically every distributer and dealer in Milwaukee, on June 1 put into effect new rules suggested by the War Economy Board to the National Automobile Dealers' Association. The Milwaukee society met Wednesday evening, May 29, and voted unanimously in favor of meeting all of the requirements of the Government in order to release man-power for strictly war purposes. The ranks of Milwaukee garage forces already have been quite generally depleted by voluntary enlistments and the selective draft, and nearly every garage and service station flies a service flag with three or more stars. The new regulations, however, will release a considerable number of mechanics, as a further contribution by the Milwaukee trade to the immediate requirement of 30,000 motor car mechanics.

Kansas City for Conservation

KANSAS CITY, June 1—The Kansas City Motor Car Dealers' Association has decided to go the limit in the adoption of conservation measures. The details of the plan are now being worked out and probably it will go into effect about June 15.

Jacksonville Joins N. A. D. A.

ST. LOUIS, June 3—The Jacksonville, Fla., dealers association is the latest to come into the N. A. D. A. with full membership.

Commandeer St. Louis Ford Plant

ST. LOUIS, June 3—W. C. Anderson, manager of the Ford Assembly plant here, has received notice that the building will be taken over within 30 days by the Government as a food warehouse and that Ford work here will cease. Anderson says that the working force in the plant has been reduced from 700 to 300 men and these have been offered positions in the food depot if they care to take them.

Outdoor Show for Bloomington

BLOOMINGTON, ILL., May 31—After a series of delays, due to unfavorable weather the proposed spring outdoor show of the Bloomington Automobile Trade Association will be held early in June. The first exhibition of this kind was held last August, the cars being grouped around the sidewalk on the court house square. The merchants co-operated, paying for the decorations, and the display was a drawing power that proved

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profitable to nearly every line of business. The dealers also traced much new business to the show and also found that the expense did not exceed $8 per firm. Although the dealers here have been unable to secure anything like the number of cars required by their respective contracts, yet they feel that it would be unwise to discontinue sales boosting or lessen the usual business activity while the war is in progress. The exact date when the show will be held will be fixed at the next meeting.

Open Cars for Road Materials

WASHINGTON, May 31—The Railroad War Board has ruled that open-top freight cars may be used for the transportation of sand, gravel and other road material, thus acting in line with the policy adopted by the United States Chamber of Commerce at its annual meeting in April.

The ruling, which has been prepared by the Car Service Section of the railroad board, provides that available open-top cars not suitable for the transportation of coal, coke or ore may be furnished for the transportation of stone, sand and gravel; when so furnished shall be used preferentially for the transportation of highway maintenance material. It is further ruled that cars used for coal, coke and ore may be used for the transportation of road materials on their return trips to the mines, and that every endeavor should be made to furnish shippers of stone, sand and gravel with a minimum of 40 per cent of their normal weekly transportation requirements.

Universal Attachment Deliveries Start

DETROIT, May 31—The first deliveries have been made on the new Detroit Universal truck attachment, manufactured and sold by the Parkview Sales Co. A complete line of attachments is offered running from the 1¼-ton size, adapted for Ford cars, to the full 3-ton job, to be used for converting the largest cars for truck service. Many special bodies are adaptable for use on the Universal truck attachment, and there is also a range of wheel bases available.

Mail Air Service Satisfactory

WASHINGTON, May 31—Postmaster-General Burleson has expressed himself fully satisfied with the air mail service and is arranging plans for its extension. Of the twelve trips made during the 2 weeks, eight were completed before 3 p. m. and two before 2.50 p. m. One trip was completed at 2.25 and two at 2.34. There were two delays when the mail reached New York at 4.45 p. m. The airplane mail service from New York arrived in Washington six times before 3.30 p. m., twice between 3.30 and 4 p. m. and four times after 4 o'clock.

Abbott Sale Ends June 1

DETROIT, May 31—The sale of the stock of the bankrupt Abbott Motor Co. will end to-morrow. Miscellaneous parts and accessories are included in the sale.

Licenses Furnished By Syracuse Dealers

Open Bureau That Makes It Easy for Car Buyer to Get Tags for His New Car

SYRACUSE, June 1—A special bureau of the New York State automobile bureau was opened here this week for the convenience of automobile buyers and dealers. Licenses will hereafter be issued for new cars through the Syracuse Automobile Dealers Association offices. Plates are only issued to owners of new passenger cars and trucks living in this city. Motorcycle licenses for all users are also to be issued.

The new bureau was formally opened by Gustave C. Miller of Buffalo, representing Secretary Hugo. Syracuse stands at the junction of the Buffalo and Albany license zones and has encountered considerable delay in getting plates from Buffalo. The new bureau will materially aid Syracuse dealers in being able to put new cars into use by owners the day they are sold.

Horey Wins at Columbus

COLUMBUS, OHIO, May 31—Fred Horey won the principal event in the race meet held here Monday under the auspices of the National Motor Contest Assn. This was the 30-mile sweepstakes run in three heats of 10 miles each. Chevrolet, driving a Case, was second, and Clark, also in a Case, was third. The event was the culmination of a day of racing which was attended by a fairly good crowd. Intens- heat interfered with the racing. The summaries:

Five miles; cars with less than 300 cu. in. piston displacement. Won by Willard (Prince Henry); second, Cline (Briscoe); third, Soules (Darracq).

One-mile exhibition trials. Horey (Fiat), 51 2/5; Clark (Case), 52; Ellingboe (Briscoe), 53 2/5; Haughdahl (Maxwell), 54 2/5; Chevrolet (Case), 54.

Ten-mile, first heat sweepstakes eliminations. Won by Cline (Briscoe; second, Chevrolet (Case); third, Ellingboe (Briscoe). Time 9:45 2/5.

Three-mile special match race. Won by Clark (Case); second, Ellingboe (Briscoe); third, Horey (Fiat). Time 2:56.1/5.

Ten miles, second sweepstakes elimination. Won by Horey (Fiat); second, Clark (Case); third, Haughdahl (Maxwell). Time 9:18 1/5.

One-mile exhibition. Horey (Fiat), 51 4/5; Clark (Case), 52 2/5.

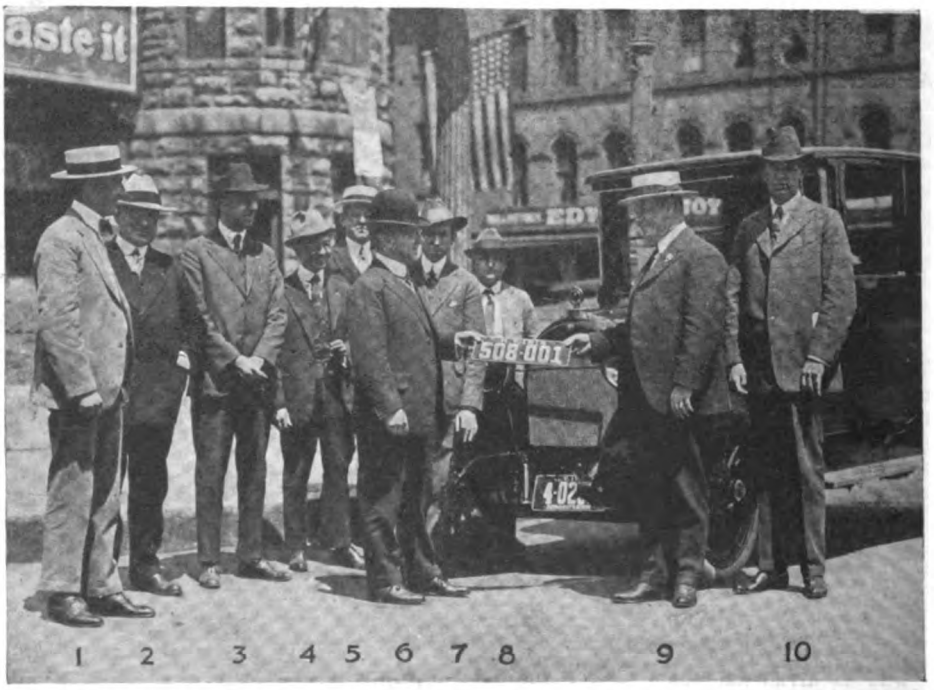
Ten mile final heat, sweepstakes. Won by Horey (Fiat); second, Chevrolet (Case); third, Clark (Case). Time 9:23 2/5.

Livingstone Succeeds Tyler

WORCESTER, MASS., May 30—W. R. Livingstone has been chosen secretary and treasurer pro tem of the Worcester Automobile Dealers' Association. He succeeds O. P. Tyler, who has joined the service of this country. The executive committee was revised as follows: F. H. Kenney, H. J. Murch, W. R. Livingstone, F. S. Howard, F. G. Chandler, S. E. Hale and J. C. Harvey

Palmer Plant Leased

DETROIT, June 3—The plant formerly used by the Palmer Mfg. Co. has been leased to the Everitt Bros. Co., body painter and finisher. The plant has about 40,000 sq. ft. of floor space.



Assistant Secretary of State Gustave C. Miller issuing first license at new Syracuse Bureau: 1—Secretary Harry T. Gardner of Syracuse Automobile Dealers' Association. 2—Simon Silverman, vice-president of association. 3—T. A. Young, treasurer. 4—Harold N. De Witt, director of association. 6—J. Allen Smith of Syracuse receiving first license plates. 7—John W. Lee, Jr., president of association. 8—C. J. Nichols, head of Mutual Motor Car Co. 9—Gustave C. Miller. 10—George H. Norris, director of association

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War Convention!

Called by National Automobile Dealers' Association

Dealers Will Gather in Chicago June 14 and 15 to Discuss Problems Due to Changed Conditions

ST. LOUIS, June 3—A general meeting of representative dealers from the whole United States has been called for June 14 and possibly 15 at the Hotel La Salle, Chicago, by President F. W. A. Vesper of the National Automobile Dealers' Association.

Requests have been sent to all the city dealer associations in the country, asking that each city be represented by the president, secretary and two accredited members of the local association.

The meeting will not be limited to members of the national association. All representative dealers are urged to come.

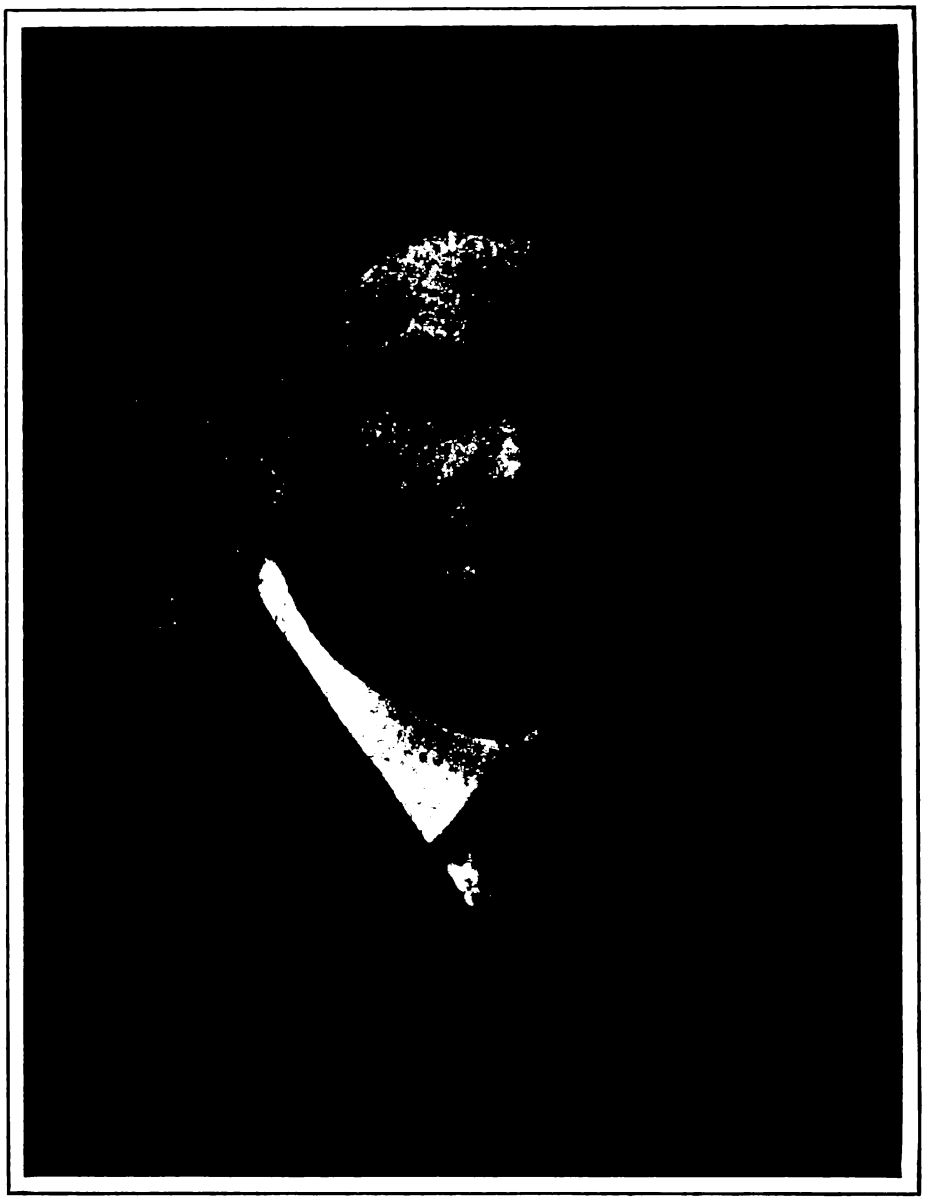
War-time problems will be taken up, including the association, recently formed plan of business conservation and the elimination of waste.

Seventeenth Used Car Report Out

CHICAGO, June 3—The Seventeenth Edition of the National Used Car Market Report has been issued by the Chicago Automobile Trade Association. Cars that have been added are the Commonwealth, Harroun, Moore and States. Cars that have been dropped are Benz, Meteor, Michigan, Palmer-Singer, Rayfield, Selden, Woods Dual Power and Columbus electric.

Miller's Accessory Division "Over the Top"

NEW YORK, June 3—Chas. E. Miller, who is divisional chairman of the Red Cross, reports that the accessory men of the Metropolitan Section have made good on their quota. Miller's establishment is 100 per cent Red Cross subscribed, and also flies the Liberty Loan Honor Flag, as well as a service flag containing 12 stars.



E. E. Peake

Who has been made executive secretary of the National Automobile Dealers' Association

ST. LOUIS, June 3—E. E. Peake, secretary of the Kansas City Motor Car Dealers' Association and president of the National Association of Automobile Show Managers, has been made executive secretary of the National Automobile Dealers' Association and will be in charge of the membership campaign. He will spend most of his time on the road, reporting directly to President F. W. A. Vesper's office in this city.

Peake is widely known to motor car dealers and has been active in the work of the N. A. D. A. By invitation, he has been making many addresses for the association and his effective work brought the new appointment to him.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

H. F. Bennett, who has been manager of the advertising and efficiency departments for the Overland Automobile Co., St. Louis, has resigned to join a Detroit factory.

A. J. Lindenberger of Detroit, has arrived in St. Louis to become manager of the branch office of the Ahlberg Bearing Co., vice L. Berry, who goes to Chicago.

Fred Z. Wright, a special representative of the Bell Telephone Co., St. Louis, has accepted the position of assistant general manager of the Newell Motor Car Co., St. Louis.

Thomas G. May, city sales manager for the Ford Branch at St. Louis, has entered the U. S. Service as a gasoline engine expert and will be stationed at the Great Lakes Training School.

George M. Price, president of the Great Western Motors, Seattle, Paige distributer, has joined the ambulance corps.

L. E. Warford, advertising manager of the Seattle branch of the B. F. Goodrich Co., has joined the Aviation Section, Signal Corps, U. S. Army.

E. M. Mark, secretary and treasurer of the North Pacific Oakland Co., Seattle, has severed his connection with that firm to become president of the Pacific Motors, Inc., Elgin distributer in the Northwest. Mark will also head the Seattle Motor Car Corp., retailing the Elgin and Harroun in King County.

A. D. Kelley, assistant general manager of the Signal Motor Truck Co., Detroit, formerly connected with the Chalmers Motor Co. and Dodge Brothers, has resigned and became associated with the government June 1. His duties will not take him away from Detroit.

A. C. Burch, who recently resigned from the Signal Motor Truck Co., Detroit, has become associated with the Clyde Cars Co. as vice-president. He assumed his duties June 1 and has complete charge of sales.

Russ Baldwin, formerly connected with the Champion Ignition Co., Flint, as head of the speedometer department, resigned recently and will shortly announce his new connection.

W. L. Agnew, formerly advertising manager of the Hudson Motor Car Co., Detroit, and later with the Chalmers Co. in the same capacity, is now connected with the Moore Motor Co., Liberty distributers in Columbia, S. C.

Richard Ferguson has been appointed managing director of the Grant-Lees Gear Co., Cleveland. He was formerly general manager of the company's East Sixty-ninth Street plant.

Max Hagelstine has been appointed factory manager of the Detroit Battery Co. and the Disco Electric Mfg. Co., Detroit. For the last ten years he has been associated with the Studebaker Corp.

F. W. Henderson has been elected president of the Signal Motor Truck Co., Detroit, to succeed A. C. Burch, who resigned.

C. T. Chenevert, formerly vice-president of the Denby Motor Truck Co., Detroit, has been commissioned a senior lieutenant in the Bureau of Aviation Operation, to supervise navy trucks in France.

Victor M. Stamm, general manager of the Milwaukee branch of the United States Rubber Co., 41 Oneida Street, Milwaukee, Wis., has been elected first vice-president of the Rotary Club of Milwaukee.

James H. Hay, superintendent of the Wallis Tractor Co., Racine, Wis., since its establishment, has resigned to accept a similar position with the Lavine Gear Co., Racine Employees presented him with a diamond ring upon leaving the Wallis plant.

H. W. Kardell, president of the Kardell Tractor & Truck Co., has removed from St. Louis to Oldsmar, Fla., where he will look after the work in the factory opening there.

L. Q. Slocumb, a salesman for the Rottersman Automobile & Truck Co., has opened a law office in St. Louis. He studied law while selling motor cars.

H. F. Bennett, who joined the staff of the Overland Automobile Co. of St. Louis from the factory at Toledo, has resigned to join a factory staff in Detroit.

H. W. Richards of the Superior Motor Car Co. staff, St. Louis, has been promoted to sales manager.

Ernest H. Craw, for ten years with the Studebaker Corp. in various capacities, has joined the New York City sales organization of the Rainier Motor Corp.

Horace G. Johnson has associated himself with the sales department of the Rich Tool Co., Chicago, and will make his headquarters at the Detroit office, 709 Kresge Building.

J. Henry Smith, manager of sales, motor parts dept., Rich Tool Co., Chicago, will make his headquarters in Chicago and all sales will be handled from there.

Charles S. Shuman, for many years connected with the Klaxon Horn organization, and recently manager of the automobile department of the Standard Metal Mfg. Co. of Newark, N. J., has resigned the latter position to become sales manager of the Vacuum Muffler Corporation of 154 Nassau Street, New York City.

Peninsula Buys Factory Site

DETROIT, June 4—The Peninsula Milled Screw Co. has acquired 10 acres of land on which it will erect a factory building covering one-half of the property. This will be built next year.

Power Truck Leases Factory

DETROIT, June 4—The recently incorporated Power Truck & Tractor Co. has obtained a 5-year lease on a factory building here. This will be equipped shortly.

Gas Shortage Story Without Foundation

Surplus of Fuel in Country at Present Time—Tank Cars Idle in Yards of Distributers

WASHINGTON, May 31—Reports to the effect that a gasoline shortage prevails are entirely untrue. Motor World states authoritatively that at the present time there is a surplus of gasoline in this country. There is no shortage of transportation. Tank cars are standing idle in the yards of many gasoline distributers. News dispatches published in the daily papers recently that gasoline and kerosene were to be mixed for the purpose of conserving gasoline and another rumor that gasoline cards are to be issued and automobiles placed on a ration of 1 gal. per day are said by Government officials to be pure propaganda fostered by manufacturers of appliances designed to operate on kerosene or on a limited supply of gasoline.

Government officials do not deny that there may be a shortage of gasoline in the future when this Government reaches its maximum power in the war. When many thousands of airplanes, tractors, tanks, trucks and passenger cars are employed for the big drive there is no question but that there will be some conservation of gasoline, but the suggestion of gasoline cards or of giving a ration of 1 gal. per day or to make a mixture of gasoline and kerosene are denounced as "wild, unsubstantiated rumors."

Receivership for Monroe Motor

PONTIAC, MICH., June 4—At a meeting of the creditors of the Monroe Motor Car Co. held a few days ago, a friendly receivership was decided on. Robert T. Armstrong, Flint, may be named receiver. It is stated that the joint claims of the Hess Spring & Axle Co., Cincinnati, and the Electric Autolight Co., Weinegar, Ohio, aggregate $380,000 and the Monroe company's liabilities total $538,000.

Motor Car Securities Quotations

	Bid	Asked
*Ajax Rubber Co.	57	60
*J. I. Case T. M. Co. pfd.	81	85
Chalmers Motor Co., com.	4½	5½
Chalmers Motor Co., pfd.	30	40
*Chandler Motor Co.	82	83
Chevrolet Motor Co.	126	130
*Fisher Body Corp. com.	30	35
*Fisher Body Corp. pfd.	83	87
Fisk Rubber Co. com.	50	55
Fisk Rubber Co. 1st pfd.	97	102
Fisk Rubber Co. 2nd pfd.	70	75
Firestone Tire & Rub. Co. com.	90	92
Firestone Tire & Rub. Co. pfd.	93	95
*General Motors Co. com.	117	119
*General Motors Co. pfd.	81	82
*B. F. Goodrich Co. com.	42	44
*B. F. Goodrich Co. pfd.	99	100
Goodyear Tire & Rub. Co. com.	141	145
Goodyear Tire & Rub. Co. pfd.	95	97
Grant Motor Car Corp.	2½	3¼
Hupp Motor Car Corp. com.	2¾	3¼
Hupp Motor Car Corp. pfd.	79	85
International Motor Co. com.	25	30
International Motor Co. 1st pfd.	54	58
International Motor Co. 2d pfd.	33	40
*Kelly-Springfield Tire Co. com.	43	46
*Kelly-Springfield T. Co. 1st pfd.	76	87
*Lee Rubber & Tire Corp.	16	17

	Bid	Asked
*Maxwell Motor Co., Inc., com.	25	26
*Maxwell M. Co., Inc., 1st pfd.	52	54
*Maxwell M. Co., Inc., 2d pfd.	18	19
Miller Rubber Co. com.	100	102
Miller Rubber Co. pfd.	93	95
Packard Motor Car Co. com.	107	112
Packard Motor Car Co. pfd.	93	96
Paige-Detroit Motor Car Co.	7	8
Peerless Truck & Motor Corp.	13	17
Portage Rubber Co. com.	102	105
†Reo Motor Car Co.	13	15
*Saxon Motor Car Corp.	7	9
Standard Motor Construction Co.	12	14
*Stewart-Warner Speed. Corp.	54	55
*Studebaker Corp. com.	40	41
*Studebaker Corp. pfd.	75	95
Swinehart Tire & Rubber Co.	38	42
United Motors Corp.	25	27
*U. S. Rubber Co. com.	56	57½
*U. S. Rubber Co. pfd.	102	103
*White Motor Co.	40	42
*Willys-Overland Co. com.	18	19
*Willys-Overland Co. pfd.	79	82
Standard Parts Co.	..	67

*At close June 2. Listed New York Stock Exchange. †Par value $10.

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Here are three of the Fordsons demonstrated by T. W. Meiklejohn at Fond du Lac, Wis., one drawing a two-bottom plow, another a disk harrow and another a spring-tooth harrow

First Fordson Tractor on View in New York

Rochester Distributer Receives Machines—To Hold Series of Demonstrations

ROCHESTER, May 31 — The first Fordson tractor arrived in Rochester on Monday and has been placed on exhibition in the salesrooms of Thomas J. Northway Co., distributer for this locality. Since that time the salesrooms of the company have been crowded and the only complaint of the company is that by no possibility can it secure as many tractors as it could have sold during the past week.

Since only 1000 of these tractors have been allotted to New York State, distributers have been cautioned to use extreme care in the sale of each tractor that it may be placed where the greatest food production will result. The allotment of 1000 tractors provides for the placing of about one tractor in each township, and before the distributers are allowed to sell two tractors in a town the prospective purchaser is required to present a statement from his local farm bureau head stating that in his opinion the placing of a tractor on that particular farm would result in a material increase in the food production of the state.

This does not mean that the state farm bureaus are indorsing the Fordson tractor, but that the distributers are using their knowledge of conditions to place the tractors where they will do the most good.

Northway has arranged for a series of demonstrations at a number of different points throughout western New York in order to acquaint purchasers with the best methods of handling them. On May 29 a demonstration was given at Benton Center, in Yates County, and on Decoration Day another was given at the Livingstone County fair grounds at Avon, where thousands witnessed the event.

Moline Develops New 4-Cylinder Tractor

MOLINE, ILL., May 31—The Moline Plow Co. of this city has just announced a new model of its Moline Universal tractor, known as Model D. It differs from the previous model chiefly in being equipped with a 4-cylinder engine instead of the former 2-cylinder. The well known Moline 2-wheel principle is retained. The engine is of the valve-in-head type and delivers 18 hp. for belt work. Clutch, transmission, differential and final drive are completely enclosed and operate in an oil bath. There are 12 Hyatt roller bearings in the transmission and drive. The tractor complete weighs 3380 lbs., of which 98 per cent rests on the 2 wheels and only about 2 per cent on the implement pulled, so that nearly all of the weight is available for traction. Every Universal tractor unit has a Moline 2-bottom plow included in the price, which is $1,375 f.o.b. Moline. Complete electrical equipment, including starter, lights and engine governor, is furnished.

Macbeth Lens for Fords Raised

NEW YORK, May 31—The Macbeth-Evans Glass Co. has increased the price of its Ford size lenses from $4 to $5.

2000 Farmers Witness Fordson Demonstration

Meiklejohn Stages Exhibition That Draws From All Over State of Wisconsin

Editor Motor World: We note the article in Motor World of May 22, describing the demonstration of the Fordson tractor given at Dayton, Ohio, May 17 and 18, and believe that you might be able to use something on the demonstration and initial appearance of the Fordson tractor in Wisconsin, which took place May 11, 1918, in Fond du Lac.

About 2000 people from all over the state witnessed the event, which was under the direction of T. W. Meiklejohn, who has volunteered to distribute the Fordson tractor to Wisconsin farmers at factory price, without any profit to himself.

We are enclosing photographs which were taken at this first demonstration, and also others which were taken at a competitive demonstration held May 21, and in which several different makes of tractors participated.—T. W. Meiklejohn, Fordson Service for Wisconsin, Fond du Lac, Wis.



Part of the crowd that turned out to see the Fordson tractor demonstration put on by Meiklejohn at Fond du Lac

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The Age of the Salesman Is Coming

So Says Lee Anderson in Pointing Out the Need for Real Merchandising Ability

DETROIT, May 31—At the meeting of the Detroit Section of the Society of Automotive Engineers held here last week, Lee Anderson, vice-president of the Hupp Motor Car Co., delivered an address on the sales problems of to-day and to-morrow. Mr. Anderson told of the serious problem which confronts all manufacturers to-day in adequately supporting their dealers. The distributing organizations which have been built up during peace times are hard put to secure sufficient products to maintain their sales volume to a sufficient extent adequately to cover their investments. As a result, many of these distributing organizations are in a precarious condition and the problem relating to their maintenance is one of the most important features of the sales manager's duties at the present time. It is not a question of seeking a market for the product, but rather seeking a product for the market. A digest of Mr. Anderson's talk follows:

Big Production After the War

This is the age of the production manager and the engineer. This condition has been brought about by the shortage of material and transportation facilities which have so changed the situation that there is no real sales problem as a sales problem now. The age of the salesman, however, is coming. The war period is causing the erection of new factories and the expansion of old factories, which, after the war, will have manufacturing facilities which will far exceed those of the period before the war. It is then that the salesman will come in to dispose of the greatly increased production activity of the plant.

Engineering improvement is part of the coming problem. The engineer must have devices to sell. The world is learning to use new things, and the war is destroying the old things. Therefore, the great problem before engineers in the future is to produce new things which meet the demand for devices of the highest efficiency.

If there is any mistake that the United States is making it is a disregard for the future sales problems. This is not the case in Europe. Already engineers of great automobile manufacturing plants have been in this country to study our market with a view of disposing of their products in this country after the war. Europe is studying the needs of America, and engineers who come over here on war work always have their mind's eye on the future sales possibilities of their products in this country.

There is no sales problem connected with disposing of automobiles at the present time. All the automobiles that the factories can produce in the next 24 months will practically sell themselves. This is true because of the absolutely inadequate production at the present time, and the uncertainties of maintaining even this production during any definite period.

Dealers' Position Causes Alarm

The position of the dealers is one which causes us the most concern. A considerable proportion of the dealers now in business are wondering how long they can keep their doors open; they are scrambling for cars and will take any cars which they can secure and any lines which they can secure, because of the insufficient quantity now being produced.

The industry owes a debt to the dealer which it must always keep in mind. It is up to the industry to keep these dealers in business, and yet this is one of the most difficult problems which could possibly be faced. If the production of the factories is spread too thinly over the entire country it does not do any of the dealers any good, and all of the dealers would have to close their doors. Therefore, it becomes a matter of selecting the dealers and sacrificing some to keep the others alive.

Speaking of the Hupp company, Mr. Anderson stated that one of the biggest reasons for supporting the dealers, outside of the debt which the industry owed them, is the fact that the dealer organization is what maintains public opinion, and public opinion is required to sell any car. He stated that in the 9 years that the Hupp company has been in existence it has spent over $5,000,000 to create a market. This is small as compared with some companies. Willys-Overland spends one and one-half million dollars alone per year. Public opinion is the foundation, and all of these millions will be wasted if this public opinion is lost, and it can be lost by losing dealers.

The Hupp company has three rules by which it works out its eliminations of what might be called non-essential dealers, in order to keep the really essential ones alive. The first question which is asked is: "Is the automobile business a side line, or is it the principal source of income?" If not absolutely dependent upon the automobile business the concern can be eliminated. The second question asked is: "To what extent is he dependent on one product or one line?"

If he has a variety of lines he cannot be considered as essential to the company as the dealer who lives only by the sales of the one line. The third question asked is: "How large an organization is at stake, how much overhead does the organization carry?" This is highly important because a dealer having a high overhead and maintaining a big organization for the purpose of distributing the product of the company must have more cars in order to maintain the standing which he has created for himself.

It is necessary that the automobile manufacturer maintain a market for his product because this market will be multiplied a hundred-fold after the war. The country cannot do without cars. When the passenger cars of the country are cut down, the efficiency of the people of the country is also cut down; furthermore, the possibility of cultivating remote expanses of farm territories is also reduced.

Only 2 per cent of the entire amount confess that their cars were bought for pleasure purposes. The day of the passenger car as a joy-riding proposition has passed, because the percentage used for purposes of this kind is so small that it need hardly be considered.

There are really five reasons behind the curtailed production. These are as follows:

1—Transportation, not only of the outgoing cars but of the incoming materials.

2—Labor; scarcity and price. It is a noteworthy fact that in spite of the 20,000 shortage in Detroit there is an average idleness of 12,000.

3—Steel.

4—Coal.

5—Rubber.

Engineers Must Study Sales

Engineers should be closer to the sales department. The engineer of to-day is inclined to be arbitrary. He is inclined to believe that because he has designed something which he believes is right the public is forced to take it. The time has passed when this can be done, and in fact, Mr. Anderson stated that he did not believe he was exaggerating when he stated that the attitude of the automobile engineer is the only thing that has not changed in the industry during the past decade.

The salesman of to-day is just as technically trained as the engineer. He can tell just what the effect of any given set of words will be and a great many other problems in sales psychology which are just as intricate as those of the engineering laboratories. The salesman knows the cars that will sell best because of his contact with the public, and consequently it is advisable that the engineer keep in close touch with him in order to produce a product of the higher success. The present-day buyer is a better buyer now than he was a year ago. The buyer of to-day will pay the price, but he wants efficiency for it. He wants economy, and he wants a dollar's worth o car for every dollar spent. This continual talk of thrift has had its effect on everybody. Everybody who buys to-day wants to justify his expenditure in his own mind. He wants the style, but good style must be in conformity with good taste, because good taste remains good longer than any fad. The buyer of to-day wants durability, he wants simplicity, and cars are selling to-day which base their entire selling arguments on performance and economy.

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The RETAIL NEWS

EAST

John C. Mattice, distributer of Oakland cars and Atterbury trucks, has enlarged his showroom and garage at 230 Stradford Avenue, Bridgeport.

Bert the Tire Man, formerly associated with the East End Supply Co., Bridgeport, has opened a vulcanizing shop at 14 Sixth Street.

J. Lebas and I. Nichthauser have opened a vulcanizing, repair and accessories shop at 2063 Fairfield Avenue, Bridgeport, under the style Lebas Service Station.

J. A. Morris, distributer of the International Motor Co., has opened a sales branch and service station at 673 Connecticut Avenue, Bridgeport.

William A. Konopaska, East Hartford, Conn., has sold his Willard battery service station in the East Hartford Garage to William Howe and has opened a new place in Willimantic, Conn., under the style Windham Battery Co.

R. Robins has sold the Valley Road Garage at East Northport, L. I., and has opened the Triangle Tire Shop at 1323 Boston Road, New York City.

C. M. Botsford & Co., Horseheads, N. Y., has been discontinued and the business taken over by H. R. Bottsford.

The Franklin Motor Car Co., Rochester, hsa moved its salesroom from 37 East Avenue to 19 Scio Street.

Gay S. Clampitt, Rochester agent for the Westcott and Rausch & Lang electrics, has discontinued his salesrooms at 19 Scio Street and will hereafter handle all business at his Park Avenue garage. The company will be styled Electric Car Sales and Service Co.

The Harrisburg Auto Co., Harrisburg, Pa., is building next to its present site a brick garage, shop, office, showroom and stockroom, and will move into the new structure in September.

The Terwilliger Equipment Co., 2013 Market Street, Philadelphia, has been made distributer of Winther trucks for this territory. H. J. Smith has been placed in charge of the line.

The Crown Auto Painting Co., Philadelphia, has leased the three-story building at 1406 Vine Street, which contains 20,000 sq. ft. of floor space.

M. J. Scott, Philadelphia, has purchased the brick garage at 5123 Sansom Street.

The Overland-Harper Co., Twenty-first and Ludlow Streets, Philadelphia, is making alterations in its Parts Department.

Hanwaring & Goodman, Philadelphia distributers of Day-Elder trucks, have moved to larger quarters at 1517 North Fifty-ninth Street.

The United Auto Stores, Inc., distributer of the Miller carbureter, has added a Philadelphia branch at Thirty-third and North Chestnut Streets, West Philadelphia.

The Penn-American Motor Car Co. has opened a salesroom at 2063 Market Street, Philadelphia, for the American Six. A service station will be conducted in connection with the business.

W. Clark Grieb, 306 North Broad Street, Philadelphia, has added Kissel trucks to its regular line.

The Larson-Oldsmobile Co., 231 North Broad Street, Philadelphia has added the Master truck.

The Painter-Dunn Co., Pittsburgh, has taken the agency for Sanford trucks in western Pennsylvania.

New Garages

H. O'Neill....1808 Pearl Street, Philadelphia
Fred Wahle..603 W. Cayuga St., Philadelphia
P. A. & J. J. Williams,
21st St. and Glenwood Ave., Philadelphia
H. Hirst....1901 Church Street, Philadelphia
W. M. King..4116 Ogden Street, Philadelphia
Edwin Wolf...1204 Parrish St., Philadelphia
Norris Estate....Church Road, Philadelphia
J. F. McAleer,
Salmon and N. Cambria Sts., Philadelphia
Kahn & Greenberg,
1641 North Broad Street, Philadelphia
J. F. Packard,
5447 North Sixth Street, Philadelphia
George H. Farrell,
Cemetery Avenue, Philadelphia
L. Nandusher,
6405 North Eleventh Street, Philadelphia
Kingsessing Garage Co.....Philadelphia

SOUTH

The Motor Sales Corp., Birmingham, Ala., has moved into new quarters at Twentieth Street and Avenue D. Salesrooms have been opened for Maxwell and Stearns cars, and a service station will be maintained for each.

The Taylor Motor Co. has purchased a building at 2022 Fifth Avenue, Birmingham, and will open salesrooms for Cole cars.

H. M. Newell has been appointed sales manager by Chester P. Wilson, Kentucky distributer for Smith Form-A-Trucks, Louisville.

The Liberty Auto Co., recently appointed distributer for the Maxwell in this territory, has opened an office and salesroom at 507 East Broadway, Louisville. R. D. Otter is president and Wallace Embry, Jr., secretary and treasurer.

The Yager Motor Car Co. has been appointed Liberty distributer in Louisville, and has opened an office and salesroom at Second and A Streets. Roy D. Yager is president.

The Monarch Auto Co., Louisville, Ky., has taken on the distribution of the Fordson tractor.

The Ex-L Auto Tire Co. has moved to its new store at 668 South Third Street, Louisville. The company, of which J. J. Goullon is president, handles the Marathon tire, and for several years has maintained a salesroom at 935 South Third Street.

The J. R. Callum Co., Norfolk, Va., has moved to new quarters in the Texas Building at Granby Street and Olney Road. The company has a filling station and complete accessory store.

MIDDLE WEST

The Lane Motor Truck Co., Detroit, has opened a New York branch to look after eastern trade.

The City Garage, Negaunee, Mich., has taken the agency for the Buick for Ishpeming, Mich.

The Prothero-McGinnis Co., Baraboo, Wis., Buick dealer, has added the Nash line of passenger and commercial cars.

L. W. Frane has opened a tire and vulcanizing shop and battery recharging and service station at Colby, Wis.

The Hunt Garage, Boscobel, Wis., has installed an electric lighting system for illuminating its building and for recharging storage batteries. The unit is of the 16-battery type and is manufactured by the International Gas Engine Co.

The Voell Auto Sales Co., 24 East Division Street, Fond du Lac, Wis., has been appointed Nash dealer.

E. A. Shinner, Hartland, Wis., has sold his garage, repairshop and Ford agency to G. B. Schneider and H. E. Salsich of Hartland, who will continue the business.

The Sterling Motor Truck Co., Milwaukee, manufacturer of the Sterling truck, has opened a service station at 704 National Avenue, Milwaukee, for the convenience of local owners. The plant is located at Forty-sixth Avenue and Burnham Street, West Allis, a suburb, and formerly all service was given at the factory.

New Garages

Juliet Auto Sales & Garage Co.....Chicago
Ernest Riefstack.....Sadorus, Ill.
Washington Auto Sales Co.....Springfield
Pan-American Sales Co.....Springfield
Prothero & McGinnis Co. (addition),
Baraboo, Wis.
C. E. Reed Auto Co. (addition),
Burlington, Wis.
Emil Beetinger.....South Milwaukee, Wis.
Menningen & Karth (addition),
West Allis, Wis.

NORTHWEST

The Des Moines Storage Battery Co. has opened a new service station at 415 East Fifth Street, Des Moines.

The Consigny Motor Truck Co., Des Moines, has moved into new quarters at 1314 Locust Street.

The Strandburg Auto Co., Dayton, Iowa, has succeeded the Freeborn Auto Co.

H. R. Knight, Eldon, Iowa, has sold his garage to Glen Wilson.

The Monticello Garage, Monticello, Iowa, will be managed by Ike Schneider during the absence of F. C. Byrne and M. First, who are in the army.

The White Way Auto Co., Pella, Iowa, will be conducted in future by A. A. Van Meer.

The Carroll Truck & Auto Co., Eleventh Street, Sioux City, Iowa, has been formed by W. F. Carroll and H. S. Kloke. The company will distribute Traffic trucks in the Sioux City territory.

A. W. Muchow, Central City, Neb., has bought the Central Garage.

J. E. Beacon, Dodge, Neb., has opened a repairshop.

The Ulmer-Frost Co., Lincoln, Neb., has moved into its new building at Eighteenth and O Streets. This is 2 stories and has 29,000 sq. ft. of floorspace.

The Victor Motor Co., Omaha, will take over the distribution of Dart trucks and tractors in the State of Nebraska and a section of western Iowa.

A. L. Wright, Scottsbluff, Neb., has bought the South Side Garage from Frank N. Cline.

Willis Pickering, Syracuse, Neb., has bought the interest of his brother, D. R. Pickering, in the Pickering Brothers Garage.

A. E. Hannen has opened a tire repairshop at Tilden, Neb.

C. R. Glenn has opened a tire repairshop at Wayne, Neb.

W. C. Gage has opened an accessories store and tire repairshop at West Point, Neb.

The Hahn-Jonas Co., Sioux Falls, S. D., has moved into new quarters at Ninth and Dakota Avenues. The new building is 2 stories high and of modern, fireproof construction. The company distributes Lexington, Cadillac and Harroun cars.

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New Garages

H. D. Dohrman.....Emerson, Neb.
C. Anderson.....Pierce, Neb.

MOUNTAIN

New Garages

F. L. Hart.....Phoenix, Ariz.
Wm. Paulson .....Wheatland, Col.
Consumers Auto Co. (addition)..Butte, Mont.

PACIFIC COAST

S. B. Kramer has purchased the supply and filling station at 301 North Los Angeles Street, Anaheim, Cal.

Fred Koesel has purchased the Valencia Garage, Anaheim, Cal.

George L. Booth has opened a Paige salesroom and service station at Anaheim, Cal.

Forrest Hurst has bought the Brea Garage, Brea, Cal.

J. E. Long has become sole owner of the Buena Park Garage, Buena Park, Cal.

B. G. Jackson has purchased an interest in the Ford Sales & Service Station, Downey, Cal. The firm is now Haney & Jackson.

A. L. Nichols has purchased the Downey Garage, Downey, Cal.

D. B. Henry has purchased the Garden Grove Garage, Garden Grove, Cal.

Parson's Auto Repairshop, Garden Grove, Cal., has installed a complete vulcanizing plant.

O. H. Hultquist has purchased the garage at 145 South Pacific Boulevard, Huntington Park, Cal. The sale includes the Overland agency.

Wise & Gibbs have bought the La Habra Garage, La Habra, Cal.

The Motor Inn Garage, La Verne, Cal., has installed a complete vulcanizing plant.

Gorham & La Place, Los Angeles, have taken over the Roamer and Patterson agencies at 750 South Grand Avenue.

R. C. Baldridge has bought the interest of H. M. McPheeters in the Exide Battery Sales & Service Station, Monrovia, Cal.

E. F. Roy has opened a tire repairshop on South Myrtle Avenue, Monrovia, Cal.

J. Allen Munro has bought the Beardsley Garage, Monrovia, Cal., and has styled it Munro's Garage.

The San Dimas Garage, San Dimas, Cal., has added a battery charging department.

The A. F. Smith Auto Co., Santa Ana, Cal., has added the Fageol truck and tractor.

The Ford Agencies of Santa Ana and Orange, Cal., have been consolidated, and will be continued at Santa Ana.

A. J. Swoffer has moved to Dick's Garage, Santa Ana, Cal.

Fine & Gilbank have bought the American Supply Station, Santa Ana, Cal.

R. S. Benedict has established Ben's Auto Tire Shop at Santa Ana, Cal.

The Kennedy & Farley Tire & Vulcanizing Shop, Santa Ana, has opened quarters with a stock of Savage tires.

The Santa Ana Rubber Co., Santa Ana, Cal., has moved to new quarters at Fifth and Birch Streets.

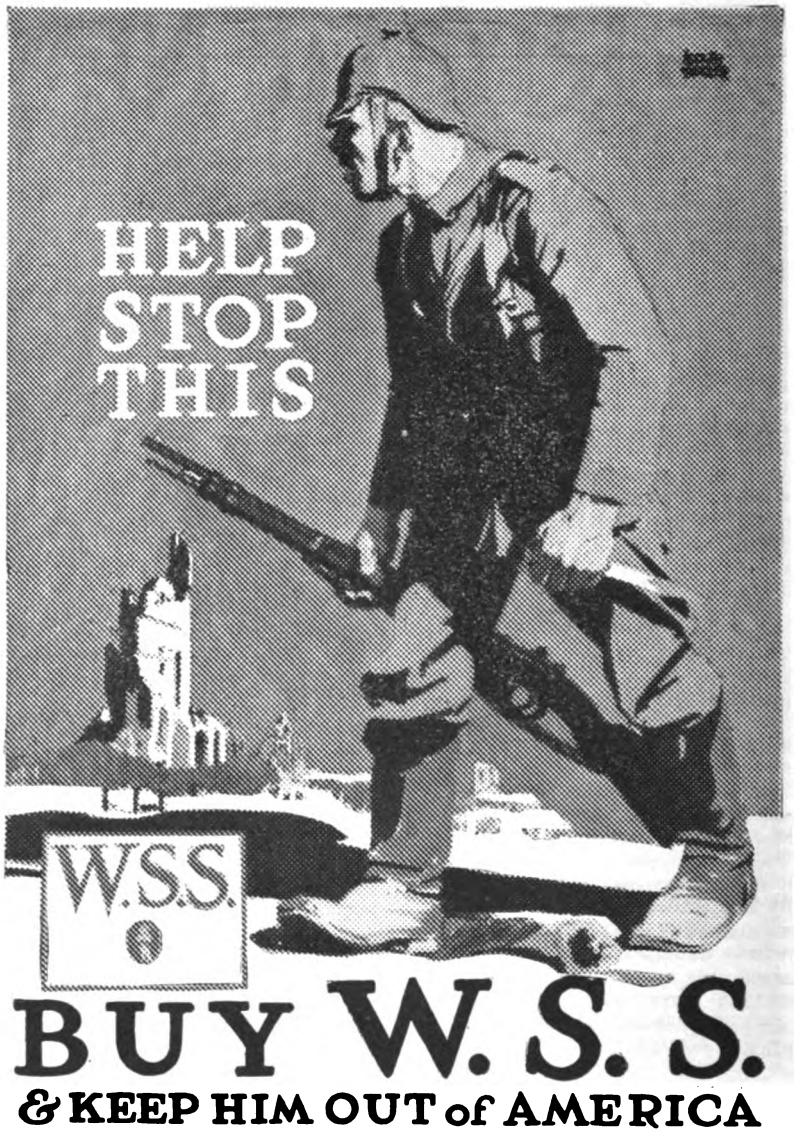
Kellogg & Menier have leased and remodeled the building at 424 Fourth Street, Santa Ana, and will handle the Nash car.

The Sierra Madre Garage, Sierra Madre, Cal., has opened Dodge Brothers salesrooms.

W. J. Hamilton has remodeled the Vernon Garage, Vernon, Cal.

Storage Battery Service Co., Hoquiam, Wash., has recently been opened by G. A. Moon.

Child, Day & Churchill, Spokane, accessory dealers, have taken over the building adjoining their present quarters, which will be used for sample room battery and magneto department.



New Garages

M. Faulkner .....Downey, Cal.
Stebick Motor Co.....Bremerton, Wash.
H. P. Quick Auto Co. (addition)
Chehalis, Wash.
F. A. Williams.....Spokane, Wash.

Book Review

TIRE Making and Merchandising by F. R. Goodell, published by the U. P. C. Book Co., 239 West Thirty-ninth Street, New York, $2 net. The book is one of great practical value and real interest to anybody engaged in the tire business. It is also useful for a man engaged in any allied business.

The first chapters take up the history of the rubber business in America, and then go into the manufacture of tires, beginning with rubber at its original source in the forest and taking it right through to the tire factories. The book tells why some tires are good and some tires are bad, and points out the different methods of manufacture that can build mileage into a tire or leave it out.

Sometimes a dealer or a buyer is unable to understand why certain things are done in tire making, or why certain tread designs are manufactured. This book points out the reason.

It analyzes tire costs and shows that tires are not entirely made of rubber, despite the common belief that rubber is a big percentage of the volume and the cost of the tire. Many other things are necessary.

The book then takes up the merchandising of tires and tells what must be done by a dealer to make money in the tire business. Seconds and gyp tires are discussed, and the book shows the relation between selling cheap tires and quality tires at a higher price. Another chapter is devoted to tire adjustment, and the damage that is done to tires by various road conditions is pointed out by illustration.

There is also a chapter of tire "lingo," consisting of the terms that are used in the tire business.

This is followed by a tabulation of all the cars made since 1915, with the tire sizes and rim sizes used on different models. There is a further tabulation of all the different tire sizes, showing what cars these tire sizes fit. It gives the dealer an idea what size and how many he should carry in stock. There is also a list of all the tire manufacturers in the country, with various other tables and data that are invaluable to the tire man.

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Meeting Problem of Human Nature

PERHAPS what will prove to be the most perplexing problem which the automotive dealer will be called upon to solve will be to meet the difficulties which will be presented by the human element. What is meant by this is the difference in his customers as regards their ability to master power farming problems.

To meet this successfully will demand the exercise of all the tact and discrimination he can muster. He must be competent to analyze and estimate the individual competency of his individual tractor customers, and he must be acute enough to estimate how the competency or the incompetency of the individual will affect the efficient operation of the machine after it passes into his control.

The average farmer habitually thinks out his power problems in terms of horses. It is inevitable that he should do so because as a rule he never has known anything else and therefore has no other standard by which to go. Yet horse standards are comparatively worthless by which to judge the tractor, because the latter is a power unit of a totally different kind.

The farmer, therefore, who readily passes from horse farming to power farming and experiences little difficulty in adapting himself to the new conditions must possess a special aptitude for the manipulation of power machinery. But it is very obvious that aptitude of this kind is not possessed by all farmers in equal degree, hence the degree of success attained in tractor operation will vary. The dealer must then be able to discriminate between aptitude and ineptitude, and he must be in a position by means of instruction and service to supply the deficiencies of the latter.

The tractor is revolutionary. It meets old conditions in a new way and in the doing so introduces new problems which are all its own. Some farmers are so readily adaptable that the new problems present little difficulty to them; to others they appear to be almost insuperable. Thus unless the dealer has the ability to help and the tact to proffer it unobtrusively and without offense these latter never will make successful tractor operators.

One such in a locality is a blot on the dealer's record. The chief duty of the automotive dealer will consist in seeing to it that whatever he sells renders effective and continuous service. In fulfilling this duty the chief obstacle he will encounter will be the incompetency of some of the men to whom he is compelled to sell. He must overcome this if he is to be accounted truly successful as a dealer.

Des Moines and Red Cross

Editor Motor World: You may be interested in knowing that in the recent Red Cross campaign the motor interests of Des Moines continued their splendid record.

The Des Moines quota was $150,000. Approximately $225,000 was finally raised.

Motor Trades, which was one of the 26 teams representing different classifications of business, had the highest number of subscriptions, and next to one other classification, which included capitalists and retired citizens, had the greatest production.

Motor Trades Bureau of the Chamber of Commerce, R. J. Clemens, chairman, included upward of 100 houses and 150 individuals, or about 85 per cent of the motor industry of this city.—Very sincerely yours, R. H. Faxon, General Secretary, the Des Moines Chamber of Commerce.

Overhaul Operations on Republic Truck

(*Continued from page* 24)

just give when the man jumps on the spoke. Adjust the two brakes equally.

16. Insert cotter pins in clevis pins and set up locknuts against yokes.

17. Remove pedal block and see that wheel turns freely. If it does not, the brake band may be bent, and this should be taken off and straightened.

18. Lower truck off jacks or trestle.

19. Take truck out on road and test brakes independently. Either set should be capable of locking the wheels. If a particularly careful job is wanted, the axle can be jacked up again after the road test, and the adjustments gone over to see if they are still all right.

20. Oil the following brake mechanism: twelve brake clevis pins, two brake shaft supports on center shaft, two brake pin arms, one on each side on external bands, hand brake lever shaft.

21. Fill and screw down grease cups on the following: two cups on brake pedal and clutch shaft, two cups on brake shafts on rear axle (*one on each side*), two cups on brake shaft supports on rear axle (*one on each side*).

American Commercial Car in Production

DETROIT, June 4—The American Commercial Car Co. will be ready in 2 weeks to make its first shipment on the 1½-ton truck, for which it has orders aggregating 100 vehicles.

Monkey Wrench One Tractor Problem

A MONKEY wrench is a dangerous tool to have around. The combination of monkey wrench and even a mild form of "tinkeritis" can raise havoc with the best-constructed tractor on earth. Toddy, of Helen's Babies fame, is not the only one who "wants shee wheels go wound." There are others. A propensity to peek into things seems to be natural with a good many men; more general by far than the counter ability to get things back into proper shape again.

The monkey wrench is indispensable around the tractor, but it should be used, not abused. Just because it happens to fit a certain nut is no reason why that nut should be turned—always. Tractors are supposed to come from the factory with all major adjustments made. Local adjustments, to meet particular conditions, should be made by some one who knows how, and then the operator should let things alone as far as possible. More often than not serious difficulty develops from unwarranted tinkering rather than that tinkering is necessary to correct difficulty. The dealer who sells tractors can do his customers no greater service than by impressing this fact firmly upon their minds.

Firestone Steel Products Co. Formed

AKRON, OHIO, June 3—The Firestone Steel Products Co. has been incorporated to manufacture demountable rims. It has completely absorbed the interests of the Firestone rim plant. H. S. Firestone, founder of the new company, has been elected president.

The officers of the company are the same as those of the Firestone Tire & Rubber Co., with the exception of J. G. Swain, who becomes vice-president and factory manager. The officers are: H. S. Firestone, president; R. J. Firestone and A. C. Miller, vice-presidents; J. G. Swain, vice-president and factory manager; S. G. Carkhuff, secretary; J. C. Robertson, treasurer. In addition to the further development of the standard Firestone rim, the company will expand its business to include the manufacture of other metal accessories for automobile wheels and tires.

Coming Events

Racing

Chicago	Chicago Speedway	June 22
Cincinnati	Cincinnati Speedway	July 4

Conventions

Hot Springs, Va.	Convention National Association of Automobile Accessory Jobbers.	June 5-13

Show

Dallas, Tex.	Seventh Annual Texas Automobile Show Texas State Fair.	Oct. 14-27

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MOTOR WORLD GUIDE

Passenger Cars

This table appears in the first issue every month. It is corrected every month and brought up to date.

MAKE AND MODEL	Price	No. of Cylinders	Bore and Stroke, Inches	S.A.E. H.P.	Piston Displacement Cubic Inches	High Gear Ratio	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION System	LUBRICATION Type of Pump	ELECTRIC SYSTEM Make	ELECTRIC SYSTEM Voltage	IGNITION Make	IGNITION Plug	CARBURETION Make of Carbureter	CARBURETION Fuel Feed	Clutch Type	TRANSMISSION GEARSET Location	TRANSMISSION GEARSET Forward Speeds	TRANSMISSION GEARSET Make	TRANSMISSION Final Drive	TRANSMISSION Car Drives Through	TRANSMISSION Rear Axle Type	TRANSMISSION Make of Rear Axle	TRANSMISSION Torque Taken By	RUNNING GEAR Wheelbase	RUNNING GEAR Tires	RUNNING GEAR Rims	RUNNING GEAR Wheels	RUNNING GEAR Rear Springs	Make of Speedometer	BEARINGS Number Crankshaft Bearings	BEARINGS Gearset	BEARINGS Rear Axle	BEARINGS Front Wheel
Abbott 6-60	$1595	6	3½x5½	29.4	303.1	4.30–1	Cont.	L.	H.	P.	Sp-Pr.	P.	Remy	6	Remy	⅞	Stmbg.	V.	D.	Unit M.	3	Muncie	Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	122	34x4	SS.	Wd.	S-E.	Stewart.	3	B.	BR.	R.
Allen 41	1095	4	3½x5	22.5	220.9	4.25–1	Own.	L.	H.	T.	Cir-Sp.	P.	A-Lite-2	6	Conn	⅞	Stmbg.	V.	P.	Unit M.	3	Own	Sp.B.	Springs.	F.	Adams.	Springs.	112	32x3½	SS.	Wd.	S-E.	Stewart.	2	BR.	B.	R.
American B	1595	6	3½x5	23.4	230.1	4.42–1	Rutnbr.	L.	H.	P.	Sp-Pr.	P.	G&D-2	6	G&D	⅞	Zenith	V.	P.	Unit M.	3	Mech	Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	122	32x4	SS.	Wd.	S-E.	VanS.	3	BP.	BR.	B.
Anderson 20	1465	6	3½x4½	25.3	224.0	4.58–1	Cont.	L.	H.	P.	Sp-Pr.	P.	West-2	6	Conn	⅞	Zenith	V.	D.	Unit M.	3	Drstn	Sp.B.	Springs.	¾ F.	Clumba	Springs.	120	33x4	SS.	Wd.	S-E.	Stewart.	3	B.	R.	B.
Anderson 400–F	1925	6	3½x5½	29.4	303.1	.....	Cont.	L.	H.	P.	Sp-Pr.	P.	West	6	Bosch	⅞	Stmbg.	V.	D.	Unit M.	...	G-Lees	Sp.B.	Springs.	¾ F.	Clumba	Springs.	120	33x4	SS.	Wr.	S-E.	Stewart.	3	B.	R.	B.
Apperson 8–18	2550	8	3½x5	33.8	331.8	4.25–1	Own.	L.	H.	T.	Sp-Pr.	G.	Bijur-2	6	Remy	⅞	Johnson	V.	D.	Amid	3	Own	Sp.B.	Springs.	SF.	Own	Springs.	130	34x4	SS.	Wd.	¾ Ell.	VanS.	3	B.	R.	R.
Apperson .8th Anniversary	3500	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	32x4½	.....	Wr.	.....	.....	.....	.....	.....	.....	.....
Auburn 6-39	1345	6	3½x4½	25.3	224.0	4.42–1	Cont.	L.	H.	P.	Sp-Pr.	P.	Remy-2	6	Remy	⅞	Rayfld	V.	P.	Unit M.	3	G-Lees	Sp.B.	Springs.	¾ F.	.....	Tor.A.	120	34x4	SS.	Wd.	S-E.	Stewart.	3	B.	R.	B.
Auburn 6-44	1685	6	3½x5½	29.4	303.1	4.08–1	Cont.	L.	H.	P.	Sp-Pr.	P.	Delco-2	6	Delco	⅞	Rayfld	V.	P.	Unit M.	3	G-Lees	Sp.B.	Springs.	F.	.....	Tor.A.	131	35x4½	SS.	Wd.	Cant.	Stewart.	3	B.	R.	B.
Austin	3750	12	2½x5	39.7	389.5	3.75–1	Widly.	I.	H.	P.	Pr.	G.	Delco-2	6	Delco	⅞	Stmbg.	V.	D.	Unit M.	3	Muncie	Sp.B.	Springs.	F.	Own	Springs.	142	34x4½	QD.	Wd.	DCant	Stewart.	3	B.	BR.	R.
Bell 18	995	4	3¼x4½	22.5	187.7	.....	{G.B.&S Cont.	L.	H.	T.	Cir-Sp.	P.	Dynto-2	6	A.Kent	⅞	Zenith	V.	D.	Unit M.	3	Covert	Bevl	Springs.	¾ F.	Adams.	Springs.	114	32x3½	QD.	Wd.	¾ Ell.	Stewart.	2	R.	R.	B.
Biddle H	2650	4	3½x5½	22.5	226.4	4.40–1	Buda	L.	H.	T.	Cir-Sp.	G.	G&D-2	6	Eismn	⅞	Zenith	V.	P.	Unit M.	4	Own	Sp.B.	Springs.	F.	Own	Springs.	121	32x4	QD.	Wr.	S-E.	Warner.	3	BB	R.	R.
Bour-Davis 18A	1680	4	3½x5	22.5	220.0	4.00–1	Cont.	I.	H.	P.	Cir-Sp.	G.	West	6	West	⅞	Miller	V.	P.	Unit M.	3	Detroit	Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	118	32x4	QD.	Wd.	S-E.	VanS.	3	B.	R.	B.
Bour-Davis 18B	1785	6	3½x5½	29.4	303.0	4.07–1	Cont.	L.	H.	P.	Cir-Sp.	P.	West	6	West	⅞	Stmbg.	V.	P.	Unit M.	3	Detroit	Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	118	33x4½	QD.	Wd.	S-E.	VanS.	3	B.	R.	B.
Brewster Chassis	5500	4	4 x5½	25.6	276.0	4.25–1	Own.	K	C.	P.	Pr.	G.	U.S.L.	12	Bosch	⅞	Zenith	V.	C.	Unit T.	3	Own	Sp.B.	Tor.T.	F.	Own	Tor.T.	125	34x4½	SS.	Wd.	Cant.	Stewart.	3	B.	R.	R.
Briscoe B–4–24	825	4	3⅛x5½	16.3	163.0	4.23–1	Own.	L.	H.	T.	Cir-Sp.	P.	A-Lite	6	Conn	⅞	Buick	G.	C.	Unit X.	3	Own	Bevl	Tor.A.	S-F.	Own	Tor.A.	104	30x3½	C.	Wd.	Ell.	Stewart.	2	Brp.	BR.	B.
Buick E–4–34, E–4–35	795	4	3½x4½	18.2	170.0	4.08–1	Own.	I.	H.	P.	Cir-Sp.	G	Delco-1	6	Delco	⅞	Marvel	V.	C.	Amid	3	Own	Bevl	Springs.	¾ F.	West-M	Springs.	106	31x4	C.	Wd.	S-E.	Stewart.	3	B.	R.	B.
Buick E–6–44–45	1265	6	3½x4½	27.3	242.0	4.08–1	Own.	I.	H.	P.	Cir-Sp.	G	Delco	6	Delco	⅞	Marvel	V.	D.	Amid	3	Own	Sp.B.	Tor.	F.	West-M	Tor.T.	118	34x4	SS.	Wd	Cant.	Stewart.	4	B.	R.	R.
Buick E–6–49	1495	6	3½x4½	27.3	242.0	4.61–1	Own.	I.	H.	P.	Cir-Sp.	G	Delco	6	Delco	⅞	Marvel	V.	D.	Amid	3	Own	Sp.B.	Tor.	F.	West-M	Tor.T.	124	34x4½	SS.	Wd	Cant.	Stewart.	4	B.	R.	R.
Cadillac 57	2970	8	3½x5½	31.2	314 0	4.43–1	Own.	L	C.	P.	Pr.	G	Delco-1	6	Delco	⅞	Own	P.	D.	Unit M.	3	Own	Sp.B.	Springs.	F.	Timken	Tor	125	35x5	SS.	Wd.	Plat.	Vans.	3	Brp.	R.	R.
Case U	1875	6	3½x5½	29.4	303.0	4.45–1	Cont.	L.	H.	P.	Sp-Pr.	P.	West	6	West	⅞	Rayfld	V.	P.	Unit M.	3	G-Lees	Sp.B.	Springs.	¾-F.	Clumba	Springs.	125	35x4½	SS.	Wd.	S-E.	Stewart.	3	B.	R.	R.
Chalmers 6–30	1615	6	3½x4½	25.3	224.0	{4 75–1 {5.18–1	Own.	L.	C.	T.	Sp-Pr.	G	West-2	6	Remy	⅞	Stmbg.	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	S-F.	Timken	Springs.	{117 {122	32x4 34x4	SS.	Wd.	S-E.	Stewart.	3	R.	R.	R.
Chandler	1595	6	3½x5	29.4	289.0	4.40–1	Own.	L.	C.	P.	Sp-Pr.	P.	West	6	Bosch	⅞	Rayfld	V.	P.	Unit M.	3	Own	Sp.B.	Springs.	F.	Own	Tor.A.	123	34x4	SS.	Wd	S-E.	Stewart.	3	B.	B.	R.
Chevrolet 490	685	4	3½x4	21.7	171.0	3.65–1	Own.	I.	H.	P.	Sp-Pr.	G	A-Lite-2	6	Remy	⅞	Zenith	G.	C.	Amid	3	Own	Sp.B.	Springs.	¾ F.	Own	Springs.	102	30x3½	C.	Wd.	Cant.	Stewart.	3	BP.	R.	C&C
Chevrolet FA	935	4	3½x5½	21.7	224.0	4.25–1	Own.	I.	H.	P.	Sp-Pr.	G	A-Lite-2	6	Remy	⅞	Zenith	V.	C.	Amid	3	Own	Sp.B.	Springs.	¾ F.	Own	Springs.	108	33x4	SS.	Wd.	Cant.	Stewart.	3	BP.	R.	C&C
Chevrolet D4 & D5	1550	8	3¼x4	36.4	286.9	4.25–1	Own.	I.	H.	P.	Sp-Pr.	G	A-Lite-2	6	Remy	⅞	Zenith	V.	C.	Amid	3	Own	Bevel	Springs.	¾ F.	Own	Tor.T.	120	34x4	SS.	Wd.	Cant.	Stewart.	3	BP.	R.	C&C
Cole 870	2395	8	3½x4½	39.2	346.4	4.45–1	North.	L.	H.	P.	Pr.	G	Delco-2	6	Delco	⅞	Stmbg.	V.	C.	Unit M.	3	North	Sp.B.	Springs.	F.	Clumba	Springs.	127	33x5	SS.	Wd	S-E.	Warner.	3	B.	R.	R.
Columbia C & D	1450	6	3½x4½	25.3	224.0	4.75–1	Cont.	L.	H.	P.	Sp-Pr.	P.	Remy	6	A.Kent	⅞	Stmbg.	V.	P.	Unit M.	3	Warner	Sp.B.	Springs.	¾ F.	Timken	Tor.T.	115	32x4	SS.	Opt.	Cant.	Stewart.	3	B.	R.	R.
Comet C-50	1285	6	3½x5	29.4	289.0	4.50–1	Lewis.	L.	H.	P.	Sp-Pr.	P.	Dynto.	6	Delco	⅞	Miller	V.	D.	Unit M.	3	Mech	Sp.B.	Springs.	¾ F.	W-Weiss	Tor-T.	125	33x4	.....	Opt.	Cant.	Stewart.	3	B.	R.	B.
Commonwealth 4-40	1095	4	3½x5	19.6	192.0	4.00–1	Lycmg.	L.	H.	T.	Cir-Sp.	P.	Dynto-2	6	A.Kent	⅞	Carter	V.	D.	Unit M.	3	Mech	Sp.B.	Springs.	F.	Peru	Springs.	115	32x3½	SS.	Opt.	¾ Ell.	VanS.	2	B.	BR.	B.
Crawford 6-40	2250	6	3½x5½	29.4	303.0	4.08–1	Cont.	L.	H.	P.	Cir-Sp.	P.	West-2	....	Bosch	⅞	Stmbg.	V.	P.	Unit M.	3	Own	Sp.B.	.....	¾ F.	Timken	Springs.	122½	32x4	.....	Wd.	S-E.	Stewart.	3	R.	R.	R.
Crow-Elkhart CE–36	995	4	3½x5	19.6	192.0	4.25–1	Own.	I.	H.	T.	Cir-Sp.	G	Dynto-2	6	Conn	⅞	Zenith	V.	P.	Unit M.	3	Covert	Bevl	Springs.	F.	Peru	Springs.	115	32x3½	SS.	Opt.	S-E.	Stewart.	3	B.	R.	C&C
Cunningham V	{4250 {4750	8	3½x5	45.0	442.0	{3.50–1 {4.12–1	Own.	L.	H.	P.	Pr.	G	West-2	6	Delco	⅞	Stmbg.	V.	D.	Unit M.	3	B-Lipe	Sp.B.	Springs.	F.	Timken	Tor.T.	{132 {142	35x5 37x5	Opt.	Opt.	¾ Ell.	Warner.	3	Brp.	R.	R.
Daniels B	3500	8	3½x5	33.8	331.8	4.45–1	Her-Sp.	L.	H.	P.	Pr.	G	West-2	6	West	⅞	Zenith	V.	D.	Unit M.	3	B-Lipe	Sp.B.	Springs.	¾ F.	Timken	Tor.T.	127	34x4½	QDR	Wd.	S-E.	Warner.	3	BR.	R.	R.
Davis H, I	1585	6	3½x4½	25.3	224 0	4.58–1	Cont.	L.	H.	P.	Sp-Pr.	P.	Delco-2	6	Delco	⅞	Stmbg.	V.	C.	Unit M.	3	Warner	Sp.B.	Springs.	¾ F.	Clumba	Springs.	119	34x4	SS.	Wd.	S-E.	Stewart.	3	BP.	R.	B.
Davis J & JI	1950	6	3½x5½	29.4	303.0	4.42–1	Cont.	L.	H.	P.	Sp-Pr.	P.	Delco-2	6	Delco	⅞	Stmbg.	V.	C.	Unit M.	3	Warner	Sp.B.	Springs.	F.	Clumba	Springs.	125	34x4½	QD.	Wd.	S-E.	Stewart.	3	BP.	R.	R.
Dixie Flyer LS–35	1095	4	3½x5	16.9	165.9	4.75–1	Lycmg.	L.	H.	T.	Cir-Sp.	P.	Dynto-2	6	Conn	⅞	Carter	V.	D.	Unit M.	3	G-Lees	Sp.B.	Tor.T.	F.	Peru	Tor.T.	112	32x3½	SS.	Wd.	¾ Ell.	VanS.	2	Brp.	BR.	B.
Doble-Detroit D	3750	2	5 x4	20.0	314.0	1.25–1	Own.	..	....	P.	Sp-Pr.	P.	Wagnr-2	12	Doble	⅞	.....	P.	.....	.....	.....	S.	.....	Springs.	S-F.	Americ'n	Tor.A.	135	35x5	.....	Wd.	S-E.	Waltham	2	B.	B.	B.
Dodge Brothers	985	4	3¼x4½	24.0	212.3	{4.17–1 {3.62–1	Own.	L.	H.	P.	Cir-Sp.	G.	N-East-1	12	Delco	⅞	Stewart	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	F.	Own	Tor.T.	114	32x3½	SS.	Opt.	¾ Ell.	J-M	3	RP.	R.	R.
Dorris 6–80	.....	6	4 x5	38.4	377.0	3.50–1	Own.	I.	H.	P.	Pr.	G.	West-2	6	Bosch	⅞	Stmbg.	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	¾ F.	Timken	Springs.	132	33x5	SS.	Wr.	S-E.	Warner.	7	R.	R.	R.
Dort 11	925	4	3½x5	19.6	192.0	4.00–1	Own.	L.	H.	T.	Cir-Sp.	P.	West-2	6	Conn	⅞	Carter	G.	C.	Unit M.	3	Mech	Bevl	Springs.	¾ F.	W-Weiss	Tor.T.	105	30x3½	QD.	Opt.	Cant.	Stewart.	2	BP.	RP.	B.
Douglas	2000	8	3½x5	33.8	331.8	4.22–1	Her-Sp.	L.	H.	P.	Pr.	G.	West-2	6	West	⅞	Zenith	V.	D.	Unit M.	3	G-Lees	Sp.B.	Springs.	F.	Clumba	Tor.A.	122	34x4	SS.	Wd.	Cant.	VanS.	3	B.	R.	R.
Elcar DF	1095	4	3½x5	19.6	192.4	.....	Lycmg.	L.	H.	T.	Cir-Sp.	P.	Dynto-2	6	A.Kent	⅞	L-O	V.	D.	Unit M.	3	Mech	Sp.B.	Springs.	F.	Salsbry.	Springs.	116	32x3½	SS.	Wd.	S-E.	Stewart.	2	B.	R.	R.
Elcar	1295	6	3½x4½	25.3	224.0	4.50–1	Cont.	L.	H.	P.	Sp-Pr.	P.	Dynto.	6	A.Kent	⅞	Stmbg.	V.	P.	Unit-M.	3	Muncie	Sp.B.	Springs.	F.	Salsbry.	Springs.	....	33x4	SS.	Wd.	Cant.	VanS.	3	BP.	R.	R.
Elgin F	1165	6	3x4½	21.6	196.2	4.45–1	Falls.	I.	H.	T.	Cir-Sp.	P.	Wagnr-2	6	Wagnr	⅞	Stmbg.	V.	P.	Unit M.	3	Mechs	Sp.B.	Springs.	¾ F.	Adams.	Tor.A.	117	33x4	.....	Wd.	Cant.	VanS.	3	BP.	B.	R.
Empire 50–51	1125	4	3½x5	24.0	235.8	4.33–1	T-Hart.	T.	H.	P.	Cir-Sp.	..	A-Lite-2	6	Conn	⅞	Stmbg.	V.	P.	Unit M.	3	Mechs	Bevl	Springs.	¾ F.	Peru	Tor.T.	115	33x4	SS.	Opt.	S-E.	Stewart.	3	BP.	BR.	B.
Empire 70A	1345	6	3½x4½	25.3	224 0	4.58–1	Cont.	L.	H.	P	Sp-Pr	P	A-Lite-2	6	Conn	⅞	Stmbg.	V.	P.	Unit M.	3	Mechs	Sp.R	Springs.	F	Hess	Springs.	120	34x4	SS.	Opt	S-E.	Stewart.	3	BP.	BR	R.
Essex	1395	4	3½x5	18.2	178.9	4.75–1	Own.	L.	H.	T.	Cir-Sp.	P.	Delco	6	Delco	....	Own	V.	D.	.....	3	Own	Sp.B.	Springs.	S-F.	Timken	Springs.	108½	32x4	.....	Wd.	S-E.	Stewart.	3	R.	R.	R.

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Flat	E-17	$5500	4	5½x6½	44.1	584.0	2.75-1	Own	L.	C.	P.	Sp-Pr	G.	West-2.	6	Bosch	⅛	Own	P.	D.	Amid	4	Own	Sp.B.	Tor.T.	S-F.	Own	Tor.T.	140	35x5	QD.	Wd.	S-E.	Stewart.	3	P.	B.	B.
Ford	T	450	4	3¾x4	22.5	176.7	3.64-1	Own	L.	S.	T.	Sp-Gr		Own	12	Own	⅛	Hol-Kng	G.	D.	Unit M.	2	Own	Bevl.	Tor.T.	S-F.	Own	(Tor.T. (Rad.Rd	100	30x3½	C.	Wd.	Trans.	None	3	P.	R.	B.
Franklin	9	2445	6	3½x4	25.3	199.1	4.33-1	Own	I.	H.	A.	Pr	G.	Dynto-1.	12	A.Kent.	⅞	Own	V.	D.	Amid	3	Own	Sp.B.	Springs.	S-F.	Own	Springs.	115	33x4½	SS.	Wd.	Ell.	Stewart.	7	B.	B.	B.
F.R.P	45-B	7000	4	4¾x6½	33.8	445.0	3.00-1	Own	I.	H.	P.	Sp-Pr	P.	Bosch-2.	12	Bosch	M	Stewart.	P.	D.	Amid	4	Own	Bevl.	Springs.	F.	Own	Tor.T.	140	36x5		Wr.	S-E.	Opt	3	B.	B.	B.
Glide	6-40	1495	6	3½x5	23.4	230.1	4.64-1	Rutnbr.	L.	H.	P.	Sp-Pr	P.	West-2.	6	West	⅞	Rayfld.	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	¾ F.	Amer	Springs.	119	34x4½	SS.	Wd.	¾ Ell.	Stewart.	3	BP.	B.	B.
Grant	G	1095	6	3 x4½	21.6	180.2	4.50-1	Own	I.	H.	T.	Cir-Sp	P.	Wagnr-2	6	Remy	⅞	Stmbg.	V.	C.	Unit M.	3	Durstn	Bevl.	Tor.T.	F.	Peru	Tor.T.	114	32x3½	SS.	Wd*	Cant.	Stewart.	3	BP.	BR.	R.
Hackett Four	AL	985	4	3½x4½	22.5	187.7	4.00-1	Own	L.	C.	T.	Sp-Pr	P.	Dynto	6	Conn	⅞	Buick	V.	D.	Unit M.	3	G-Lees	Bevl.	Springs.	S-F.	W-Weiss	Springs.	112	32x3½		Wd.	¾ Ell.	Stewart.	3	B.	R.	B.
Halladay	S	1375	6	3½x 5	23.4	230.1		Rutnbr.						West		A-Lite		Zenith	V.	D.		3	G-Lees				Hess	120	34x4	SS.			Stewart.				
Halladay	R	1530	6	3½x5	23.4	230.1		Rutnbr.						West		A-Lite		Zenith	V.	D.		3	G-Lees				Hess	122	34x4	SS.			Stewart.				
Harroun	A-1	895	4	3½x5½	16.9	174.2	4.00-1	Own	L.	H.	T.	Cir-Sp	P.	Remy-2.	6	A.Kent.	⅞	Stmbg.	V.	C.	Unit M.	3	Mech	Bevl.	Springs.	¾ F.	Own	Tor.T.	106	30x3½		Wd.	Cant.	Stewart.	3	BP.	BR.	R.
Harvard	4-30	785	4	3 x4½	14.4	120.2	4.00-1	Sterl	I.	H.	T.	Cir-Sp	G.	Wagnr-2	6	A.Kent.	⅞	Zenith	G.	C.	Unit M.	3	Dtroit	Bevl.	Tor.A.	S-F.	Detroit	Springs.	100	28x3		Opt.	Cant.	Stewart.		BP.	BR.	B.
Haynes	38	1850	6	3½x5	29.4	288.6	4.42-1	Own	L.	H.	P.	Cir-Sp	P.	Lce-N-2.	6	Remy	⅞	Rayfld.	V.	P.	Unit M.	3	Own	Sp.B.	Springs.	¾ F.	Own	Springs.	121	34x4	SS.	Wd.	S-E.	Stewart.	3	B.	B.	B.
Haynes	39	1950	6	3½x5	29.4	288.6	4.42-1	Own	L.	H.	P.	Cir-Sp	P.	Lce-N-2.	6	Remy	⅞	Rayfld.	V.	P.	Unit M.	3	Own	Sp.B.	Springs.	¾ F.	Own	Springs.	127	35x4½	SS.	Wd.	S-E.	Stewart.	3	BP.	BP.	B.
Haynes	44	2910	12	2½x5	36.3	356.3	4.07-1	Own	I.	C.	P.	Pr	G.	Lce-N-2.	6	Delco	⅞	Rayfld.	V.	P.	Unit M.	3	Own	Sp.B.	Springs.	¾ F.	Own	Springs.	127	34x4½	SS.	Wr.	S-E.	Warner.	3	B.	B.	B.
Hollier	188	1385	8	3 x4½	28.8	240.3	4.50-1	Own	L.	H.	T.	Pr	G	Split-1.	12	A.Kent.	⅞	Stewrt.	V.	C.	Unit M.	3	Own	Sp.B.	Tor.T.	F.	Own	Tor.T.	116	34x4	SS.	Wd.	Cant.	Stewart.	3	B.	B.	B.
Hollier	206	1485	6	3½x4½	25.3	224.0	4.58-1	Cont.	L.	H.	P.	Sp-Pr	G	Split	12	Remy	⅞	Stmbg.	V.	C.	Unit M.	3	Own	Sp.B.		F.	Own	Tor.T.	116	32x4	SS.	Wd.	Cant.	Stewart.	3	B.	B.	B.
Hudson	Super-Six	1950	6	3½x5	29.4	288.6	4.45-1	Own	L.	H.	P.	Cir-Sp	P.	Delco-1.	6	Delco	⅞	Own	V.	D.	Unit M.	3	Own	Sp.B.	Springs.	½-F.	Timken	Springs.	125½	35x4½	SS.	Wd*	S-E.	Stewart.	4	R.	R.	R.
Hupmobile	R	1350	4	3½x5½	16.9	182.5	4.91-1	Own	L.	C.	T.	Pr	G	Bijur	6	A.Kent.	⅞	Stmbg.	V.	D.	Unit M.	3	Own	Sp.B	Springs.	¾ F.	Own	Springs.	112	32x4	SS.	Wd.	S-E.	Van	3	BP.	R.	B.
Inter-State	T	1000	4	3½x5	19.6	192.4	4.00-1	Beaver	I.	H.	T.	Cir-Sp	G.	Remy-2	6	Remy	⅞	Schblr.	G.	C.	Unit X.	3	Drstn	Bevl.	Tor.T.	¾ F.	Peru	Tor.T.	110	33x4	SS.	Wd.	¾ Ell.	Stewart.	3	BR.	R.	B.
Jackson	349	1495	8	3 x3½	28.8	197.9	5.27-1	Ferro	I.	H.	T.	Pr	G.	A-Lite-2.	6	Remy	⅞	Zenith	V.	P.	Unit M.	3	Covert	Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	118	34x4	SS.	Wd.	Ell.	Stewart.		R.	R.	B.
Jones	27-ABC	1875	6	3½x5½	29.4	295.9	4.45-1	Cont.	L.	H.	P.	Cir-Sp	P.	West.	6	Remy	⅞	Rayfld.	V.	P.	Unit M.	3	Covert	Sp.B.	Springs.	¾ F.	Timken	Springs.	126	34x4	SS.	Wd.	S-E.	Stewart.	3	R.	R.	B.
Jordan	J-60	1995	6	3½x5½	29.4	303.1	4.08-1	Cont.	L.	H.	P.	Sp-Pr	P.	Bijur-2.	6	Delco	⅞	Stmbg.	V.	D.	Unit M.	3	Detroit	Sp.B.	Springs.	S-F.	Timken	Springs.	127	33x4½	SS.	Wd.	S-E.	Van	3	BP.	R.	BR.
King	F	2150	8	3 x5	28.8	282.7	4.58-1	Own	L.	C.	T.	Pr	G.	Bijur-2.	6	A.Kent.	⅞	Ball	V.	P.	Unit M.	3	Own	Sp.B.	Springs.	F.	Clumba.	Tor.A.	120	34x4	SS.	Wd.	Cant.	Stewart.	3	Brp	R.	R.
Kissel	Hundred Pt. Six	1495	6	3½x5	25.3	248.9	4.58-1	Own	L.	H.	P.	Sp-Pr	G.	Remy	6	Remy	⅞	Stmbg.	V.	C.	Unit M.	3	TWWarner	Sp.B.	Springs.	F.	Own	Springs.	117	34x4	SS.	Wd.	¾ Ell.	Stewart.	3	RP.	R.	R.
Kissel	Double Six	2450	12	2½x5	39.6	259.0	4.58-1	Widly	I.	H.	P.	Pr	G.	Delco	6	Delco	⅞	Stmbg.	V.	D.	Unit M.	3	Warner Gr.	Sp.B.	Springs.	F.	Own	Springs.	128	34x4½	SS.	Wd.	¾ Ell.	Stewart.	3	BR.	R.	R.
Kline	6-38	1495	6	3½x4½	25.3	224.0	4.75-1	Cont.	L.	H.	P.	Sp-Pr	P.	West-2.	6	West	⅞	Rayfld.	V.	P.	Unit M.	3	G-Lees	Sp.B.	Springs.	F.	Hess	Springs.	120	34x4	SS.	Wd.	¾ Ell.	Stewart.	3	B.	R.	R.
Lexington	6-R	1585	6	3½x4½	25.3	224.0	5.00-1	Cont.	L.	H.	P.	Cir-Sp	P.	West-2.	6	Conn	⅞	Rayfld.	V.	P.	Unit M.	3	Warner	Sp.B.	Springs.	¾ F.	Hess	Springs.	122	34x4	QD.	Wd.	S-E.	Stewart.	3	B.	R.	B.
Liberty	10-B	1385	6	3½x4½	25.4	224.1	4.75-1	Cont.	L.	H.	T.	Sp-Pr	P.	Delco-2.	6	Delco	⅞	Stmbg.	V.	P.	Unit M.	3	Detroit	Sp.B.	Springs.	S-F.	Timken	Springs.	115	32x4	SS.	Wd.	S-E.	Stewart.	3	B.	R.	R.
Locomobile	2-38	5000	6	4½x5	43.3	425.6	4.07-1	Own	T.	H.	P.	Sp-Pr	G.	West-2.	6	Berling.	⅞	Ball	P.	D.	Amid	4	Own	Sp.B.	Rad.Rd	F.	Own	Tor.A.	139	37x5	QD.	Wd.	¾ Ell.	Warner.	7	B.	B.	R.
Locomobile	2-48	5950	6	4½x5½	48.6	524.8	3.85-1	Own	T.	H.	P.	Sp-Pr	G.	West-2.	6	Berling.	⅞	Ball	P.	D.	Amid	4	Own	Sp.B.	Rad.Rd	F.	Own	Tor.A.	142	37x5	QD.	Wd.	¾ Ell.	Warner.	7	B.	B.	R.
Madison		1485	{6	3½x5	23.4	230.1	4.64-1	Rutnbr.	L.	H.	P.	Sp-Pr	P.	Remy	6	Remy	⅞	Rayfld.	V.	D.	Unit M.	3	Muncie	Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	120	34x4		Wd.	¾ Ell.	Stewart.	3	BP.	B.	B.
			{6	3½x5	23.4	230.1	4.42-1	Rutnbr.	L.	H.	P.	Cir-Sp	P.	Remy-2.	6	Remy	⅞	Rayfld.	V.	D.	Unit M.	3	Muncie	Sp.B.	Springs.	¾ F.	Salsbry.	Springs.	120	34x4	SS.	Wd.	¾ Ell.	Stewart.	3	BP.	B.	B.
Maibohm	A	830	4	3½x4	15.6	122.7	4.25-1	Own	L.	H.	T.	Sp-Pr	P.	Disco-1.	12	A.Kent.	⅞	Zenith	G.	D.	Unit M.	3	Mech	Sp.B.	Springs.	F.	W-Weiss	Springs.	105	30x3½	C.	Opt.	S-E.	Stewart.	2	B.	R.	B.
Maibohm	B	1150	6	3½x4½	23.4	195.6	4.50-1	Falls	I.	H.	T.	Sp-Pr	P.	Wagnr-2	6	A.Kent.	⅞	Stmbg.	V.	P.	Unit M.	3	Mech	Sp.B.	Springs.	F.	Peru	Springs.	115	32x3½	SS.	Opt.	S-E.	Stewart.	3	B.	R.	B.
Marmon	34	3700	6	3½x5½	33.7	339.7	{3.69-1 {4.00-1	Own	I.	H.	P.	Pr	G.	Bijur-2.	6	Bosch	⅞	Stmbg.	G.	C.	Unit T.	3	Own	Sp.B.	Tor.T.	¾ F.	Own	Tor.T.	136	32x4½	QD.	Wr.	Brush.	Van	4	Brp.	BR.	R.
Maxwell	25	825	4	3½x4½	21.0	185.8	3.58-1	Own	L.	H.	T.	Sp-Pr	P.	S-Huff-1.	12	A.Kent.	⅞	K-D	G.	C.	Unit M.	3	Own	Bevl.	Springs.	¾ F.	Own	Tor.T.	109	30x3½	C.	Opt.	S-E.	Stewart.	2	RP.	R.	B.
McFarlan	X	3900	6	4½x6	48.6	572.5	3.50-1	Teetor	T.	H.	P.	Sp-Pr	P.	West-2.	6	Eismn	⅞	Stmbg.	V.	P.	Amid	3	B-Lipe	Sp.B.	Springs.	F.	Timken	Springs.	136	35x5	QD.	Opt.	S-E.	Warner.	4	R.	R.	R.
Mercer	Series 4	3850	4	3½x6½	22.5	298.2	{3.22-1 {3.62-1	Own	L.	C.	P.	Pr	G.	West	12	Berlin	⅞	Ball	V.	D.	Amid	4	Own	Sp.B.	Springs.	F.	Own	Springs.	{115 {132	32x4 32x4½	SS.	Wr.	S-E.	Warner.	3	{B. {BR	R.
Metz	25	695	4	3½x4	24.0	188.7	4.00-1	Own	L.	H.	T.	Cir-Sp	G.	West-2.	6	A.Kent.	½ L	A.W.T.	G.		Amid	7	Friction	Chain.	Rad.Rd.	D.	Own	Springs.	108	32x3½	SS.	Opt.	Ell.	Stewart.	3		R.	B.
Mitchell	D-40	1350	6	3½x5	25.3	248.9	4.25-1	Own	L.	H.	P.	Sp-Pr	P.	Remy	6	Remy	⅞	Rayfld.	V.	C.	Unit T.	3	Own	Sp.B.	Springs.	¾ F.	Own	Tor.T.	120	32x4	SS.	Wd.	Cant.	Stewart.	3	BR.	R.	R.
Mitchell	C-42	1625	6	3½x5	29.4	288.6	4.25-1	Own	L.	H.	P.	Sp-Pr	P.	Remy	6	Remy	⅞	Stmbg.	V.	C.	Unit T.	3	Own	Sp.B.	Springs.	F.	Own	Tor.T.	127	34x4	SS.	Wd.	Cant.	Stewart.	3	BR.	R.	R.
Moline-Knight	C	1750	4	3½x5	22.5	220.9	4.90-1	Own	K	C.	T.	Pr	G.	A-Lite	6	Conn	⅞	Schblr.	V.	C.	Amid	3	Warner	Sp.B.	Tor.A.	S-F.	Timken	Tor.A.	118	34x4	SS.	Wd.	Brush.	Stewart.	3	R.	R.	R.
Moline-Knight	G	2375	4	4 x6	25.6	301.6	4.00-1	Own	K	C.	T.	Pr	G.	A-Lite	6	Conn	⅞	Schblr.	V.	C.	Amid	3	Warner	Sp.B.	Tor.A.	S-F.	Timken	Tor.A.	122	35x4½	SS.	Wd.	Brush.	Stewart.	3	R.	R.	R.
Monitor	J	1295	6	3½x4½	25.4	224.0	{4.08-1 {4.50-1	Cont.	L.	H.	P.	Sp-Pr		Dyneto	6	Conn	¼	Stmbg.	V.	P.	Unit M.	3	G-Lees	Bevl.	Springs.	F.	Adams	Springs.	117	33x4	SS.	Wd.	¾ Ell.	Stewart.	3	B.	B.	BR.
Monroe	Club M-3	635	4	3 x4½	14.4	120.2	4.00-1	Sterl	I.	H.	T.	Cir-Sp	P.	A-Lite-2.	6	Conn	⅞	Zenith	V.	D.	Unit M.	3	Mech	Sp.B.	Springs.	¾ F.	W-Weiss	Springs.	96	31x3½	QD.	Wd.	S-E.	Stewart.	2	B.	BR.	B.
Monroe	M-6	995	4	3½x4½	16.9	149.3	4.80-1	Own	I.	H.	T.	Sp-Pr	G.	A-Lite-2.	6	Conn	⅞	Zenith	V.	D.	Unit M.	3	Mech	Sp.B.	Tor.A.	S.F.	Hess	Tor.T.	115	32x3½	QD.	Opt.	Brush.	Stewart.	2	B.	R.	R.
Moon	6-36	1295	6	2¾x4½	19.8	165.5	4.75-1	Cont.	L.	H.	T.	Sp-Pr	P.	Wagnr-2	6	Delco	⅞	Tiltsn	G.	P.	Unit X.	3	Jacobson	Sp.B.	Tor-A.	S.F.	Jacobson	Tor.T.	114	32x3½	SS.	Wd.	S-E.	Van	3	RP.	R.	R.
Moon	6-66	1985	6	3½x5½	29.4	303.1	4.45-1	Cont.	L.	H.	P.	Sp-Pr	P.	Delco-2.	6	Delco	⅞	Rayfld.	V.	P.	Unit M.	3	Warner	Sp.B.	Springs.	S-F.	Timken	Springs.	125	35x4½	SS.	Wd.	S-E.	Van	3	B.	R.	R.
Moore	30	695	4	3½x4½	22.5	187.7		G.B.&S.	L.	H.	T.	Sp-Pr		Dyneto		Conn			V.	D.	Unit M.	3	G-Lees	Sp.B.			Salsbry	Springs.	106	30x3½	C.			Stewart.				
Murray	70-T	2800	8	3½x5	33.8	331.8	{4.08-1 {4.45-1	Her-Sp.	L.	H.	P.	Pr	G.	West-2.	6	Conn	¼	Zenith	V	P.	Unit M.	3	Covert	Sp.B.	Springs.	F.	Timken	Springs.	128	34x4½		Opt.	¾ Ell.	Stewart.	3	B.	R.	R.
Nash	{682 {681-683	1545 1395	6	3½x5	25.3	249.0	4.50-1	Own	I.	H.	P.	Sp-Pr	G.	Delco	6	Delco	⅛	Marvel.	V.	P.	Unit M.	3	Own	Sp.B.	Springs.	S-F.	Own	Springs.	{127 121	34x4	SS.	Wd.	S-E.	Stewart.	3	R.	R.	R.
National	6	2150	6	3½x5½	29.4	303.1	4.58-1	Own	L.	H.	P.	Sp-Pr	P.	West-2.	6	Spltdf	⅛	Rayfld.	V.	C.	Unit M.	3	Muncie	Sp.B.	Springs.	F.	Clumba.	Tor.A.	128	34x4½	QDR	Wd.	Cant.	Warner.	3	B.	R.	B.
National	12	2750	12	2½x4½	39.6	370.1	4.58-1	Own	L.	H.	P.	Pr	G.	Bijur-2.	6	Delco	⅛	Rayfld.	V.	C.	Unit M.	3	Muncie	Sp.B.	Springs.	F.	Clumba.	Tor.A.	128	34x4½	QDR	Wd.	Cant.	Warner.	3	B.	R.	R.
Nelson		1400	4	3½x4½	15.6	145.7	4.25-1	Own	I.	H.	T.	Pr	G.	U.S.L.-1.	12	Bosch	⅛	Zenith	V.	D.	Unit X.	3	Own	Sp.B.	Sub-Fr.	F.	Own	Rad-Rd.	104	32x4	SS.	Wd.	Trans.	Stewart.	2	BR.	RB.	B.

*—*Optional*
1—*Single Unit*
2—*Two Unit*
A—*Air*
A-Ch—*Allis-Chalmers*
A.Kent—*Atwater Kent*
A-Lite—*Auto-Lite*
Amer—*American*
Amid—*Amidships*
B—*Bevel gear*
B—*Ball*
B&Ball—*Ball & Ball*
Beavr—*Beaver*
Brlng—*Berling*
B-Lipe—*Brown-Lipe*
B&Beck—*Borg & Beck*
Brp—*BRP*
C—*Chain*
C—*Cone*
C&C—*Cup and cone*
Cant—*Cantilever*
Cir-Sp—*Circulat'g Splash*
Clumba—*Columbia*
Conn—*Connecticut*
Cont—*Continental*
C.U.—*Control Unit*
D—*Dead*
D—*Disk*
Ditwlr—*Ditwiler*
DriSe—*Driggs Seabury*
DD—*Dry disk*
Drstn—*Durston*
Dtroit—*Detroit*
Dusnbrg—*Dusenberg*
Dynto—*Dyneto*
Eismn—*Eisemann*
Ell—*Elliptic*
Empir—*Empire*
F—*Floating*
F—*Flywheel*
Fostr—*Foster*
G—*Gear oil pump*
G—*Gravity*
G,B&S—*Golden, Belknap & Swartz*
G&D—*Gray & Davis*
Gemr—*Gemmer*
G-Lees—*Grant-Lees*
Hartfd—*Hartford*
H—*Helical gear*
He-Shaw—*Hele-Shaw*
Heinz—*Heinze*
Her-Sp—*Herschell-Spillman*
Hrcls—*Hercules*
Hoosr—*Hoosier*
I—*Impeller*
Int.C—*Internal Chain*
J-M—*Johns-Manville*
Johnsn—*Johnson*
Kingstn—*Kingston*
Lce-N—*Leese-Neville*
L—*Long*
Lefevr—*Lefever*
Liget—*Liggett*
Longmr—*Longuemare*
Lycmg—*Lycoming*
M—*Magnetic*
MEvans—*Merchant & Evans*
Mech—*Mechanics*
Mas-Ph—*Massnick-Phipps*
Milwk—*Milwaukee*
N-Amer—*North American*
N-East—*North East*
Newcm—*Newcomb*
Non-Sp—*Non-splash*
North—*Northway*
Opt—*Optional*
1—*Single-unit*
P—*Plain*
P—*Plate*
P—*Water Pump*
P—*Plunger oil pump*
P—*Pressure fuel feed*
Pr—*Pressure*
Plat—*Platform*
QD—*Quick Detachable*
QDR—*QD Reversible*
Rochtr—*Rochester*
R—*Roller*
Rad-Rd—*Radius Rod*
R-My—*Robbins & Myers*
Russl—*Russel*
Rayfld—*Rayfield*
Rutnbr—*Rutenber*
S-E—*Semi-Elliptic*
S-Huff—*Simms-Huff*
S—*Spur Gear*
S-F—*Semi-Floating*
SS—*Straight side*
Schblr—*Schebler*
Slsby—*Salisbury*
Shldn—*Sheldon*
Sp.B—*Spiral Bevel*
Sp-G—*Spiral Gear*
Sp—*Splash*
Sp-Pr—*Splash-pressure*
Split—*Splitdorf*
Sp-Pr—*Splash Pressure*
Sterl—*Sterling*
Stewrt—*Stewart*
Stmbg—*Stromberg*
T-Hart—*Teetor-Hartley*
¾ Ell—¾ *Elliptic*
¾ F—¾ Floating
Timkn—*Timken*
T—*Thermo-Syphon*
Tiltsn—*Tillotson*
Timkn—*Timken*
Tor.A—*Torque Arm*
Tor.T—*Torque Tube*
Trans—*Transverse*
2—*Two-unit*
UnitM—*Unit with engine*
UnitT—*Unit with torque tube*
Unit X—*Unit with axle*
V—*Vacuum*
Van-S—*Van Sicklen*
W-Lnr—*Ward Leonard*
W.W.—*Walker Weiss*
Wauk—*Waukesha*
Wagnr—*Wagner*
West—*Westinghouse*
WestM—*Weston Mott*
Widly—*Weidley*
Wis—*Wisconsin*
Wr—*Wire*
Wd—*Wood*
Zen-Sp—*Zenith Special*

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PASSENGER CARS—Continued

MAKE AND MODEL	Price	No. of Cylinders	Bore and Stroke, Inches	S.A.E. H.P.	Piston Displacement Cubic Inches	High Gear Ratio	Make of Engine	Cylinder Shape	Camshaft Drive	Water Circulation	LUBRICATION System	LUBRICATION Type of Pump	ELECTRIC SYSTEM Make	ELECTRIC SYSTEM Voltage	IGNITION Make	IGNITION Plug	CARBURETION Make of Carbureter	CARBURETION Fuel Feed	Clutch Type	TRANSMISSION GEARSET Location	TRANSMISSION GEARSET Forward Speeds	TRANSMISSION GEARSET Make	TRANSMISSION Final Drive	TRANSMISSION Car Drives Through	TRANSMISSION Rear Axle Type	TRANSMISSION Make of Rear Axle	TRANSMISSION Torque Taken By	RUNNING GEAR Wheelbase	RUNNING GEAR Tire	RUNNING GEAR Rims	RUNNING GEAR Wheels	RUNNING GEAR Rear Springs	Make of Speedometer	Number Crankshaft Bearings	BEARINGS Gearset	BEARINGS Rear Axle	BEARINGS Front Wheel
Oakland 34-B	$1050	6	2½x4½	19.0	177.0	4.50–1	North...	I.	H...	P.	Sp-Pr...	G.	Remy-2.	6	Remy...	⅞	Marvel..	V.	C..	Unit M..	3	Warner...	Bevel..	Springs.	F...	West.M.	Springs..	112	32x4	SS...	Wd.	S-E...	Stewart..	3	BP..	BR.	B...
Oldsmobile 37	1195	6	2½x4½	19.0	177.0	4.58–1	North...	I.	H...	P.	Pr.....	G.	Remy-2.	6	Remy...	⅞	Johnsn..	V.	C..	Unit M..	3	North....	Sp.B..	Springs.	F..	West.M.	Springs..	112	32x4	SS...	Wd.	S-E...	Stewart..	3	Brp.	BR.	R...
Oldsmobile 45-A	1550	8	2¾x4½	26.4	246.7	4.92–1	Own....	L.	H...	P.	Pr.....	G.	Delco-2..	6	Delco...	⅞	Ball....	V.	C..	Unit M..	3	Own.....	Sp.B..	Springs.	F..	West.M.	Springs..	120	34x4	SS...	Wd.	⅛ Ell.	Stewart..	2	Brp.	BR	R...
Olympian	1085	4	3½x4½	16.9	149.3	4.75–1	Own....	I.	H...	T.	Pr.....	G.	A-Lite-2.	6	Conn....	....	Stmbg..	V.	D..	Unit X..	3	Own.....	Sp.B..	Springs.	¾ F..	Own..	Rad.Rd	112	32x3½	.....	Opt.	Trans.	Stewart..	2	BP..	BR.	R...
Overland 90	850	4	3⅛x5	18.2	178.9	4.00–1	Own....	L.	H...	T.	Cir-Sp...	P.	A-Lite-2.	6	Conn....	⅞	Tilltsn..	V.	C..	Unit X..	3	Own.....	Sp B..	Tor.T...	¾ F..	Own....	Tor.T...	106	31x4	C....	Wd.	Cant.	Stewart..	2	Brp.	BR	R...
Overland 85-B-4	965	4	4½x4½	27.2	240.5	4.00–1	Own....	L.	H...	T.	Cir-Sp...	G.	A-Lite-2.	6	Conn....	⅞	Tilltsn..	V.	C..	Unit X..	3	Own.....	Bevel..	Tor.T...	¾ F..	Own....	Tor.T...	112	32x4	SS...	Wd.	Cant.	Stewart..	5	BR.	BR	R...
Overland 85-B-6	1195	6	3½x4½	25.3	224.0	4.60–1	Cont....	L.	H...	P.	Sp-Pr...	P.	A-Lite..	6	Conn....	⅞	Tilltsn..	V.	C..	Unit X..	3	Own.....	Sp.B..	Tor.T...	¾ F..	Own....	Tor.T...	116	32x4	C....	Wd.	Cant.	Stewart..	3	BR.	BR.	R...
Owen Magnetic W-42	5300	6	4 x5½	38.4	414.7	4.00–1	Own....	I.	Sp-g	P.	Pr.....	G.	Own....	24	Bosch...	⅞	Zenith..	V.	Om	Unit M..	....	Magnetic..	Sp.B..	Springs.	F..	Amer...	Springs.	142	35x5	SS...	Wr..	S-E...	Warner..	3	....	R..	R...
Owen Magnetic M-25	3300	6	3½x5½	29.4	303.1	4.08–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Own....	14	Bosch...	⅞	Zenith..	V.	Om	Unit M..	....	Magnetic..	Sp.B..	Springs.	¾ F..	Timken..	Springs.	125	34x4½	SS...	Wd.	S-E...	Warner.	3	....	R..	R...
Owen Magnetic O-36	3950	6	3¾x5½	33.6	364.5	3.50–1	Buda...	L.	H...	P.	Sp-Pr...	G.	Own....	28	Bosch...	⅞	Zenith..	V.	Om	Unit M..	....	Magnetic..	Sp.B..	Springs.	F....	Amer..	Tor.T...	136	35x5	SS...	Wr..	S-E...	Warner.	4	....	R..	R...
Packard {3-25 / 3-35}	3950 / 4300	12	3 x5	43.2	424.1	4.36–1	Own....	L.	C...	P.	Pr.....	G.	Bijur-2..	6	Delco...	⅞	Own....	P.	D..	Unit M..	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.A...	128 / 136	35x5	QD..	Wd.	S-E...	Walthm.	3	BR.	B...	R...
Paige 6-39	1395	6	3½x5	23.4	230.1	4.41–1	Rutnbr..	L.	H...	P.	Sp-Pr...	P.	G&D-2..	6	Remy...	⅞	Stmbg..	G.	P..	Unit M..	3	Own.....	Sp.B..	Tor.T...	¾ F..	Salsbry..	Tor.T...	117	32x4	SS...	Wd.	Cant.	Stewart..	3	Brp.	BR	R...
Paige 6-55	1830	6	3½x5½	29.4	303.1	4.35–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Remy-2.	6	Remy...	⅞	Rayfld..	V.	P..	Unit M..	3	Own.....	Sp.B..	Tor.T...	¾ F..	Salsbry..	Tor.T...	127	35x4½	SS...	Wd.	Cant.	Stewart..	3	Brp.	BR.	B...
Pan-American G-5	1650	6	3½x5	23.4	230.0	4.45–1	Rutnbr..	L.	H...	P.	Sp-Pr...	P.	G&D...	6	G&D...	⅞	Rayfld..	V.	P..	Unit M..	3	Warner...	Sp.B..	Springs.	S-F.	Timken..	Springs.	120	33x4½	SS...	Wd.	S-E...	Stewart..	3	B...	R...	R...
Paterson 6-45	1295	6	3½x4½	25.4	224.0	4.50–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Delco...	6	Delco...	⅞ L	Stmbg..	V.	C..	Unit M..	3	Detroit...	Sp.B..	Springs.	F..	Hess...	Springs.	120	32x4	C....	Wd.	⅛ Ell.	Stewart..	3	P...	R...	B...
Peerless 56	2550	8	3½x5	33.8	331.8	4.90–1	Own....	L.	H...	P.	Pr.....	G.	A-Lite-2.	6	A.Kent..	⅞	Ball....	V.	D..	Unit M..	3	B-Lipe....	Sp.B..	Springs.	S-F.	Timken..	Springs.	125	35x4½	SS...	Wd.	Plat...	Warner..	3	BR.	R...	R...
Pierce-Arrow C-4	4800	6	4 x5½	38.4	414.7	3.78–1	Own....	T.	H...	P.	Pr.....	G.	West-2..	6	Bosch...	⅞	Own....	P.	C..	Amid...	4	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.T...	134	34x4½	QD.	Wd.	⅛ Ell.	Warner..	7	B..	BR	R..
Pierce-Arrow B-4	5500	6	4½x5½	48.6	524.8	3.53–1	Own....	T.	H...	P.	Pr.....	G.	West-2..	6	Bosch...	⅞	Own....	P.	C..	Amid...	4	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.T...	142	35x5	QD.	Wd.	⅛ Ell.	Warner.	7	B...	BR.	R...
Pierce-Arrow A-4	6500	6	5 x7	60.0	824.7	2.88–1	Own....	T.	H...	P.	Pr.....	G.	West-2..	6	Bosch...	⅞	Own....	P.	C..	Amid...	4	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.T...	147½	36x5½	QD.	Wd.	⅛ Ell.	Warner.	7	B...	BR	R...
Pilot 6-45	1395	6	3½x5	23.4	230.1	4.25–1	T-Hart..	L.	H...	P.	Sp-Pr...	P.	Delco-2..	6	Delco...	⅞	Tiltsn...	V.	P..	Unit M..	3	Muncie..	Sp.B..	Springs.	¾ F..	Hess....	Tor.A...	120	32x4	SS..	Wd.	Cant.	VanS...	3	BR.	BR.	R...
Premier 6-C	2285	6	3¾x5½	27.3	295.3	4.45–1	Own....	I.	H...	P.	Sp-Pr...	G.	Delco-2..	6	Delco...	⅞	Johnson.	V.	P..	Unit M..	3	Detroit...	Sp.B..	Springs.	S-F.	Timken..	Springs..	125½	35x4½ 32x4½	SS...	Wd.	S-E...	Warner.	3	BP..	R...	R...
Princess 36-F	875	4	3¾x4½	22.5	187.7	4.25–1	G.B.&S..	L.	C...	T	Cir-Sp...	P.	Disco-2..	6	Splitdrf..	⅞	Schblr..	V.	D..	Unit M..	3	G-Lees....	Sp.B..	Springs.	F....	Own....	Springs..	108	32x3½	.....	Wd.	⅛ Ell.	VanS...	3	BR.	BR.	B...
Regal J	795	4	3½x4½	19.6	182.8	4.25–1	Own....	L.	H...	T.	Cir-Sp...	P.	A-Lite...	6	A.Kent..	½	Carter...	V.	C..	Unit M..	3	G-Lees....	Bevel..	Tor.T...	F....	Peru....	Tor.T...	108	30x3½	QD..	Wd.	Cant.	Stewart..	3	B...	BR	B...
Reo T	1225	4	4¼x4½	27.2	240.5	4.30–1	Own....	F.	H...	P.	Cir-Sp...	P.	Remy-2.	6	Remy...	½ L	Johnson.	V.	D..	Amid...	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Springs	120	34x4	SS...	Wd.	S-E...	Stewart..	3	R...	R...	R...
Reo M	1550	6	3⅞x5½	30.4	306.6	4.30–1	Own....	F.	H...	P.	Cir-Sp...	P.	Remy-2.	6	Remy...	½ L	Rayfld..	V.	D..	Amid...	3	Own.....	Sp.B..	Springs.	F..	Own....	Tor.A...	126	34x4½	SS...	Wd.	Cant.	Stewart..	3	R...	R...	R...
Roamer D-4-75	2950	4	4 x6	25.6	301.6	3.77–1	Dusnbrg	H	H...	P.	Sp-Pr...	G.	Bijur....	6	Bosch...	⅞	Stmbg..	V.	P..	Unit M.	3	G-Lees....	Sp.B..	Springs.	¾ F..	Hess....	Tor.A...	128	32x4½	SS...	Wr..	S-E...	Stewart..	3	BR.	B...	B...
Roamer C-6-54	2375	6	3½x5½	29.4	303 1	3.77–1	Cont	L.	H...	P.	Sp-Pr...	P.	Bijur....	6	Bosch...	⅞	Stmbg..	V.	P..	Unit M.	3	G-Lees....	Sp.B..	Springs.	¾ F..	Hess....	Tor.A	128	32x4	SS...	Wr..	S-E.	Stewart..	3	BR	B...	B...
Saxon S-4	1045	6	2¾x4½	19.8	175.3	4.75–1	Cont....	L.	H...	T.	Cir-Sp...	P.	Wagnr-2	6	Remy...	⅞	Stmbg..	G.	P..	Unit X..	3	Own.....	Sp.B..	Tor.T...	S-F.	Timken..	Tor.T...	112	32x3½	SS...	Opt.	Cant.	Stewart..	3	Brp.	R...	R...
Sayers Six-42	1395	6	3½x4½	25.3	224.0	4.75–1	Cont	L.	....	P.	Sp-Pr...	....	Delco...	6	Delco...	⅞	Zenith..	V.	P..	Unit M..	3	Mechanics.	Sp.B.	Springs.	¾ F.	Hess....	Springs..	118	32x4	SS...	Wd.	S-E...	Stewart..	3	B...	R	B...
Scripps-Booth Six-39	1195	6	2½x4½	19.0	177.0	4.5 –1	North..	I.	H...	P.	Sp-Pr...	G.	Remy-2.	6	Remy...	⅞	Marvel..	V.	C..	Unit M..	3	Warner....	Bevel..	Springs.	F..	West.M.	Springs..	112	32x4	SS...	Opt.	S-E...	Stewart..	3	BP.	BR.	B...
Simplex V	7000	6	4⅜x6½	45.9	563.7	3.00–1	Own....	L.	C...	P.	Sp-Pr...	G.	Bosch-2	12	Eismn..	⅞	Newcmb	P.	D..	Unit M..	4	Own.....	Sp.B..	Springs.	F..	Own....	Springs..	143½	37x5	QD.	Opt.	S-E...	Stewart.	3	R...	BR.	R...
Singer 17	4100	6	4 x5½	38.4	414.7	3.77–1	Her-Sp..	T.	H...	P.	Pr.....	G.	West-1..	6	Bosch...	⅞	Rayfld..	V.	D..	Unit M..	4	Muncie..	Sp.B..	Springs.	F..	Timken..	Tor.T...	139	35x5	QD.	Wr..	Cant.	Warner..	3	B...	R...	R...
Standard G	2450	8	3½x5	33.8	331.8	4.45–1	Her-Sp..	L.	H...	P.	Pr.....	G.	West-2..	6	West....	⅞	Zenith..	V.	P..	Unit M..	3	G-Lees....	Sp.B..	Springs.	S-F.	Timken..	Springs..	127	34x4½	.....	Wd.	S-E...	Stewart..	3	BR.	R...	R...
Stanley Steamer	2800	2	4 x5	12.8	125.6	1.5 –1	.....	...	...	...	.....	...	.....	...	.....	...	.....	P.	...	.....	...	.....	Sp.G.	Rad.Rd.	....	Own....	Engine.	130	35x4½	SS...	Wd.	Ell...	Stewart.	...	...	...	...
Stearns SKL4	1935	4	3¾x5½	22.5	248.5	4.50–1	Own....	K	C...	P.	Sp-Pr...	G.	West-2..	12	Remy...	⅞	Schblr..	V.	D..	Unit M..	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.A...	119	34x4	SS...	Wd.	Cant.	Stewart..	3	BR.	BR.	R...
Stearns SK8	2700	8	3½x5	33.8	331.8	4.75–1	Own....	K	C...	T.	Sp-Pr...	G.	West-2..	12	Remy...	⅞	Rayfld..	V.	D..	Unit M..	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Tor.A...	125	35x4½	SS...	Wd.	Cant.	Stewart.	3	BR.	BR.	R...
Stephens Salient Six	1585	6	3½x4½	25.3	224.0	4.75–1	Own....	I.	H...	T.	Pr.....	G.	Delco....	6	Delco...	½	Stmbg..	V.	P..	Unit M..	3	Mech.....	Sp.B..	Springs.	F..	Hess....	Springs..	118	32x4	SS...	Wd.	S-E...	VanS...	3	B...	R...	R...
Studebaker SH4-40	1125	4	3⅛x5	22.5	192.4	4.08–1	Own....	L.	H...	P.	Cir-Sp...	G.	Wagnr-2	6	Remy...	½	Schblr..	V.	C..	Amid...	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Springs..	112	32x3½	SS...	Wd.	S-E...	Warner.	3	RP.	R...	R...
Studebaker EG	1585	6	3⅛x5	36.0	354.0	3.71–1	Own....	L.	H...	P.	Cir-Sp...	G.	Wagnr..	6	Remy...	⅞	Ball....	V.	C..	Amid...	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Springs..	126	33x4½	SS...	Wd.	S-E...	Warner.	4	RP.	R...	R...
Studebaker EH6-50	1985	6	3½x5	29.4	288.6	4.00–1	Own....	L.	H...	P.	Cir-Sp...	G.	Wagnr-2	6	Remy...	½	Ball....	V.	C..	Amid...	3	Own.....	Sp.B..	Springs.	S-F.	Own....	Springs..	119	32x4	SS...	Wd.	S-E...	Warner.	4	RP.	R...	R...
Stutz S	2750	4	4¾x6	30.6	360.8	3.75–1	Own....	T.	H...	P.	Pr.....	G.	Remy-2.	6	Delco...	⅞	Stmbg..	P.	C..	Unit X..	3	Own.....	Bevel..	Tor.T...	¾ F..	Own....	Tor.T...	130	32x4½	SS...	Wr..	S-E...	Stewart.	3	B...	BR.	R...
Templar A445	2085	4	3⅞x5½	18.2	197.0	4.81–1	Own....	I.	C...	P.	Pr.....	G.	Remy-2.	6	Remy...	⅞	Zenith..	V.	P..	Unit M.	3	Detroit...	Sp.B..	Springs.	S-F.	Amer...	Springs..	118	32x4	SS...	Wd.	S-E...	Warner.	3	B...	B...	R...
Velie 38	1390	6	3½x4½	25.3	224.0	4.75–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Remy-2.	6	Remy...	⅞	Rayfld..	V.	P..	Unit M..	3	Durstn....	Sp.B..	Springs.	S-F.	Timken..	Springs.	115	32x4	SS...	Wd.	⅛ Ell.	VanS...	3	B...	R...	R...
Velie 39	1645	6	3½x5½	29.4	303.1	4.45–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Remy-2.	6	Remy...	⅞	Rayfld..	V.	P..	Unit M..	4	Warner....	Sp.B..	Springs.	S-F.	Timken..	Springs.	124	33x4½	SS...	Wd.	⅛ Ell.	VanS...	3	B...	R...	R...
Westcott S-18	2090	6	3½x5½	29.4	303.1	4.45–1	Cont....	L.	H...	P.	Sp-Pr...	P.	Delco-2..	6	Delco...	⅞	Rayfld..	V.	D..	Unit M..	3	B-Lipe....	Sp.B..	Springs.	S-F.	Timken..	Tor.T...	125	35x4½	SS...	Wd.	Cant.	Warner..	3	BR.	R...	R...
White 16 Valve Four	5000	4	4½x5½	28.9	326.3	.....	Own....	T.	H...	P.	Pr.....	G.	Lee-N-2.	12	.....	⅞	Own....	V.	D..	Unit M..	4	Own.....	Sp.B..	Springs.	S-F.	Own....	Springs.	137½ 124½	35x5	U....	Wd.	S-E...	Stewart.	3	B...	B...	B...
Willys-Knight 88-4	1625	4	4½x4½	27.2	240.5	4.30–1	Own....	K	C...	T.	Sp-Pr...	P.	A-Lite-2.	6	Conn....	⅞	Tiltsn...	V.	C..	Unit X..	3	Own.....	Sp.B..	Tor.T...	F....	Own....	Tor.T...	121	34x4½	SS...	Wd.	Cant.	Warner..	3	Brp.	R...	R...
Willys-Knight 88-8	2100	8	3¾x4	36.4	286.3	4.60–1	Own....	K	C...	T.	Pr.....	P.	A-Lite-2.	6	Remy...	⅞	Zenith..	V.	C..	Unit X..	3	Own.....	Sp.B..	Tor.T...	F....	Own....	Tor.T...	125	34x4½	SS...	Wd.	Cant.	Warner..	2	Brp.	R...	R...
Willys 89	1450	6	3½x5½	29.4	303.1	4.00–1	Cont....	L.	H...	P.	Sp-Pr...	P.	A-Lite-2.	6	Conn....	⅞	Tiltsn...	V.	C..	Unit X..	3	Own.....	Sp.B..	Tor.T...	¾ F..	Own....	Tor.T...	120	33x4½	SS...	Opt.	Cant.	Stewart.	3	Br..	BR.	R...
Winton 33	3150	6	3½x5½	33.7	347.9	4.45–1	Own....	L.	C...	P.	Pr.....	P.	Bijur-2..	6	Bosch...	⅞	Rayfld..	V.	D..	Unit M..	4	Own.....	Sp.B..	Springs.	F....	Own....	Tor.R...	128	36x4½	QD.	Wd.	⅜ Ell.	Warner.	4	BR.	R...	R...
Winton 48	3850	6	4½x5½	48.6	524.8	4.08–1	Own....	L.	C...	P.	Pr.....	P.	Bijur-2..	6	Bosch...	⅞	Rayfld..	V.	D..	Unit M..	4	Own.....	Sp.B..	Springs.	F....	Own....	Tor.R...	138	37x5	QD.	Wd.	⅜ Ell.	Warner.	4	BR.	R...	R...
Woods 54	2950	4	2¾x4	12.1	95.0	8.25–1	Cont....	L.	H...	T.	Sp-Pr...	P.	Own....	60	A.Kent..	⅞	Stmbg..	G.	M.	Unit M..	....	Electric...	Worm.	Springs.	S-F.	Own....	Tor.A...	124	35x4½	QD..	Wd.	Cant.	Stewart.	3	....	BR.	R...

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MOTOR WORLD GUIDE

Lamp Bulbs

Lamp Bulbs

Car and Model	HEAD LAMPS Volt	HEAD LAMPS Cp.	SIDE LAMPS Volt	SIDE LAMPS Cp.	TAIL LAMP Volt	TAIL LAMP Cp.	DASH LAMP Volt	DASH LAMP Cp.	Fuses Amp.	Socket	Wiring System	Type of Dimmer	Remarks
Abbott-Detroit	6-8	15	6-8	4H	6-8	2	6-8	2		E.S.	S.		Dash Ediswan D.
Allen HI	6-8	18	6-8	4	6-8	2	6-8	2	15	E.S.	S.	D. Bulb	
American B	6-8	15	6-8	4H	3-4	2	3-4	2	20	E.S.	S.		Dash lamp double.
Anderson 20	6-8	21	6-8	12H	6-8	4	6-8	4		E.S.	S.	Warner lens.	
Apperson	6-8	18			6-8	2	6-8	2	10	E.D.	D.	Resist.	
Auburn 39 B	6-8	15	6-8	4	6-8	2	6-8	2	25	E.S.	S.		Dash Ediswan D.
Auburn 44	6-8	18	6-8	12	6-8	2	6-8	2		E.S.	S.		Dash Ediswan D.
Austin	6-8	24	6-8	4 H	6-8	4				E.S.	S.		
Bell 18	6-8	18	6-8	4 H	6-8	2	6-8	2	15	E.S.	S.		Dash Ediswan D.
Biddle H	6-8	21	6-8	4 H	6-8	2	6-8	2	10	E.S.	S.		Dash Ediswan D.
Brewster	12-16	40	12-16	4H	6-8	2	6-8	2	10	E.S.	S.		Dash Ediswan D.
Briscoe	6-8	21			6-8	2	6-8	2	20	E.S.	S.	Resist.	Dash Ediswan D.
Bour Davis	6-8	15			6-8	2	6-8	2		E.S.			
Buick	6-8	15	6-8	4H	6-8	2	6-8	2	C.B.	E.S.	S.		
Cadillac 57	6-8	18	6-8	6	3-4	2	3-4	2	C.B.	E.S.	S.	Hdlamps	
Case U	6-8	18	6-8	4H	6-8	2	6-8	2	20	E.S.	S.		
Chalmers 6-30	6-8	15	6-8	4H	6-8	2	6-8	2	{30 / 15}	E.S.	S.		
Chandler	6-8	18	6-8	4H	6-8	2	6-8	2	20	E.S.	S.		
Chevrolet 4-90	6-8	12			6-8	2	6-8	2	20	E.D.	S.		
Chevrolet FA	6-8	15			6-8	2	6-8	2	20	E.D.	S.		Dash Edison D.
Chevrolet D	6-8	15	6-8	4H	6-8	2	6-8	2	20	E.S.	S.		Dash Edison D.
Cole 870	6-8	21			3-4	2	3-4	2		E.S.	S.		Dash lamp Ediswan D.
Columbia C&D	6-8	15	6-8	4	6-8	2	6-8	2	None	E.S.	S.		Dash Ediswan D.
Commonwealth	6-8	15	6-8	4H	6-8	4	6-8	2		E.S.	S.		Dash lamp Ediswan D.
Crawford 6-40	6-8	15			6-8	4	6-8	2	15	E.S.	S.		Dash lamp Ediswan D.
Crow-Elkhart	6-8	15	6-8	4H	6-8	2	6-8	2	10	E.D.	S.	Series	Dash lamp Ediswan D.
Cunningham V	6-8	15	6-8	4	6-8	4	6-8	4	15	E.S.	S.	Warner lens.	Tail lamp Ediswan S.
Daniels B	6-8	18	6-8	4H	6-8	2	6-8	2	15	E.S.	S.	Warner lens.	Cowl lamp Candel.
Davis	6-8	15			6-8	4	6-8	4		E.D.	S.	Warner lens.	Dash lamp Ediswan D.
Dixie Flyer	6-8	15			3-4	2	3-4	2	10	E.D.	D.	Resist.	
Doble-Detroit	12-16	32			6-8	2	6-8	2	None	E.D.	S.		Dash and tail in Series
Dodge Brothers	12-16	15			12-16	2	12-16	2		E.S.	S.	Resist.	
Dorris 6-80	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.		Inspec. lamp, 6 v., 4 cp.
Dort 11	6-8	15			6-8	4	6-8	2	10	E.S.	S.	Resist.	Dash lamp Ediswan D.
Elgin A	6-8	21	6-8	4H	6-8	2	6-8	2	20	E.S.	S.		
Elcar	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.		
Empire	6-8	15	6-8	4H	3-4	2	3-4	2	20	E.S.	S.		Dash lamp Ediswan D.
Fiat E-17	6-8	15	6-8	4H	6-8	2	6-8	4		E.S.		Warner lens.	Tonneau lamp 6 v. 2 cp.
Ford T	6-8									E.D.			
Franklin 9	12-16	21	12-16	4H	6-8	2	{6-8 / 12-16}	{2 / 2}	10	E.D.			Panel 12-16 v., 2 cp.
F. R. P. 45-B	12-16	25	12-16	6	12-16	3	12-16	3	6-3	E.S.	S.		
Glide 6-40	6-8	15	6-8	4H	6-8	2	6-8	2	15	E.S.	S.		
Grant G	6-8	15	6-8	4H	6-8	2	6-8	2	20		S.	Resist.	Dash lamp Ediswan D.
Halladay	6-8	15	6-8	4H	6-8	4	6-8	2		E.S.	S.		Dash Ediswan D.
Harroun A-1	6	15			3	2	3	2	15	E.S.	S.	Resist.	Dash Ediswan D.
Haynes	6-8	15	6-8	12H	6-8	2	6-8	2	5	E.D.	D.	Series	
Hollier	6-8	15			6-8	2	6-8	2	20	E.S.	S.	Series	
Hudson	6-8	15			3-4	2	3-4	2		E.S.	S.	Resist.	Dash lamp Ediswan D.
Hupmobile R	6-8	15	6-8	2	6-8	2	6-8	2	15	E.S.	S.	Resist.	
Inter-State T	6-8	15			6-8	2	6-8	2	10	E.D.	S.	Resist.	
Jackson 349	6-8	15			6-8	2	6-8	2	20	E.D.	S.		
Jones 27ABC	6-8	21	6-8	2	6-8	2	6-8	2	15	E.S.	S.	Resist.	
Jordan 5-60	6-8	18	6-8	4H	6-8	3	6-8	3	20	E.S.	S.		
King F	6-8	18	6-8	4H	6-8	4	6-8	2	10	E.S.	S.	Series	Tonneau, 6-8v., 2 cp.
Kissel	6-8	18			6-8	2	6-8	2	20	E.D.	S.	Series	Dash lamp single.
Kline 6-38	6-8	15	6-8	4	6-8	2	6-8	2	15	E.S.	S.		Fuses 5 amp. in all but hdlps
Lexington 6R	7	30			6	2	6	4	15	E.S.	S.	D. Bulb	Dash lamp Ediswan D.
		32							5			Hdlamps	Spotlight, 7 v., 21 cp., double contact.
	7	6											
Liberty 10B	6-8	15		H	6-8	2	6-8	2		E.S.	S.		
Locomobile	6-8	21	6-8	6	6-8	4	6-8	2	10	E.S.	S.	Resist.	Tonneau & Steplights 6-8v..2 cp
McFarlan X	6-8	24	6-8	12H	6-8	2	6-8	2	10	E.S.	S.	Warner lens.	Dash lamp Ediswan D.
Madison	6-8	15	6-8	6H	6-8	4	6-8	4	5	E.S.	S.	Series	Dash lamp Ediswan D.
Maibohm A	12	18	12	4	6	2	6	2	None	E.S.	S.	Resist.	
B	6-8	18	6-8	4	6-8	2	3-4	2	15	E.S.	S.	Resist.	
Marmon 34	6-8	24	6-8	8H	6-8	4	6-8	4	20	E.S.	S.	Warner lens.	
Maxwell 25	12-16	24	12-16		12-16	2	12-16	2	20	E.S.	S.	Resist.	
Mercer 22-73	12-16	24	12-16	4	12-16	4	12-16	4	10	E.S.	S.	Clear lens	
Metz 25	6-8	15	6-8	4H	6-8	2	6-8	2	50	E.D.	S.	Shad. rays	
Mitchell D-40	6-8	15			6-8	2	6-8	2	20	E.D.	S.	Series	
Moline-Knight	6-8	15	6-8	6H	6-8	2	6-8	4	20	E.S.	S.	Deflect	
Monroe	6-8	15	6-8	2H	6-8	2	6-8	2	20	E.S.	S.	D. Bulb	
Moon	6-8	15			6-8	2	6-8	4	C.B.	E.S.	S.	Warner lens.	Dash lamp Ediswan D.
Murray 70T	6-8	18	6-8	4H	6-8	2	6-8	2	15	E D.		Warner lens.	Dash and tail Ediswan S.
													Fuses 5 amp. in dimmer
Nash	6-8	14	6-8	4H	6-8	2	6-8	2	C.B.	E.S.	S.		Dash lamp double.
National	6-8	18	6-8	4H	6-8	2	6-8	2		E.S.	S.		Dash lamp double.
Nelson	12-16	30	12-16	6H	12-16	3	12-16	3	5-30	E.D.	D.		Inspec. lamp, 12-16 v., 3 cp.
Oakland 34-B	6-8	15			6-8	2	6-8	2		E.S.	S.	Resist.	Dash lamp Ediswan S.
Oldsmobile 37	6-8	15	6-8	4H	6-8	2	6-8	2		E.S.	S.		Dash lamp Ediswan D.
Olympian	6-8	15			6-8	2	6-8	2		E.S.	S.	Resist.	
Overland	6-8	16			3-4	2	3-4	2	20	E.D.	S.	Series	Dash and tail Ediswan S.
Owen O-36	28	21	28	4H	28	2	28	2	10	E.D.	D.		
M-25	14	21	14	4H	14	2	14	2	10	E.D.			Headlamps Ediswan S.
W-42	28	21	28	4H	28	2	28	2	10	E.D.	D.		
Paige	6-8	15	6-8	4H	6-8	2	6-8	2	20	E.S.	S.		
Paterson 6-45	6-8	12	6-8	8H	3-4	2	3-4		2				
Packard	6-8	24	6-8	6	6-8	2	6-8	4	10	E.S.	S.	Warner lens.	Dash lamp Ediswan D.
Pan American	6-8	15			6-8	2	6-8	2	20	E.S.	S.	D Bulb	Aux. headlights, 6 cp.
Peerless 56	6-8	15	6-8	4	6-8	2	6-8	2	10	E.S.	S.	Warner lens.	Dash lamp Ediswan D.
Pierce-Arrow	6-8	21	6-8	4	6-8	4	6-8	4	10	E.S.	S.	Sutterly	
Pilot 6-45	6-8	15			6-8	2	6-8	2		E.S.	S.	Resist.	
Regal J	6-8	21			6-8	4	6-8	2		E.S.	S.	Resist.	
Reo M	6-8	15			3-4	2	3-4	2	5	E.D.	D.	Series	
Reo T	6-8	15			3-4	2	3-4	2	5			Resist.	
Saxon	6-8	12			6-8	2	6-8	2	15	E.S.	S.	Resist.	
Scripps-Booth	6-8	15	6-8	4H	6-8	2	6-8	2		E.S.	S.	D Bulb	
Simplex V	12-16	40	12-16	4H	6-8	2	6-8	2	10	E.S.	S.		Inspec. lamp, 6 v., 2 cp
Singer 17	6-8	32			6-8	2	6-8	2	5	E.S.	S.	Warner lens.	Tail lamp double.
Standard G	6-8	18	6-8	4	6-8	2	6-8	2	15	E.S.	S.	Warner lens.	Tail lamp double.
Stanley Steamer	6-8	18	6-8	4H	6-8	2	6-8	2		E.S.	S.	Controllite	
Stearns SK8	12-16	24	12-16	4H	12-16	2	12-16	2	20	E.S.	S.		
SKL-4	12-16	18	12-16	4H	12-16	2	12-16	2	20	E.S.	S.		
Stephens	6-8	21	6-8	4	6-8	2	6-8	2		E.S.	S.		
Studebaker SH, EH, EG	6-8	12			6-8	2	6-8	2	10	E.S.	S.	Resist.	
Stutz S	6-8	18	6-8	4H	6-8	2	6-8	4		E.D.	D.	Warner lens.	
Templar	6-8	18	6-8	4	6-8	2	6-8	2		E.S.	S.	Mac Beth "Liberty" lens	Spotlight, 36 cp.
Velie 38-39	6-8	15	6-8	4	3-4	2	3-4	2	5	E.S.	S.		Dash lamp double.
Westcott S-18	6-8	15	6-8	4H	3-4	2	3-4	2		E.S.	S.	Warner lens.	
White	12-16	25	12-16	4H	12-16	2	12-16	4	C.B.	E.D.	D.	Warner lens.	Dash lamp double.
Willys-Knight	6-8	16			3-4	2	3-4	2		E.D.	S.	Series	
Winton 33-48	6-8	21	6-8	12	6-8	4	6-8	2	20	E.S.	S.		Tail lamp Ediswan S.
Woods 54	60	25	30	8H	30	10	30	10	10	E.D.	D.		

ABBREVIATIONS:—C.B.—Circuit Breaker. Candel.—Candelabra. D.—Double wiring system. E.D.—Ediswan double contact. E.S.—Ediswan single contact. H.—Small bulbs in headlamps for city driving. Resist.—Resistance. S.—Single wiring system. Series—Series connection.

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Tires and Tubes — MOTOR WORLD GUIDE — Tires and Tubes

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	31x4	32x4	33x4	34x4	35x4	35x4½	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
ACME	Plain	17 60	18 90		25 30	s26 30	26 80		s35 10	36 50	37 70	39 01					53 10	54 60	56 30		63 50	65 50	67 50		
	Kam Tread		s19 70		s26 60	s27 60	28 20		s36 90	38 50	39 70	41 10				qc53 90	55 80	57 30	59 10	60 80	66 70	68 90	70 70		
	Dimple	20 20	21 60		29 00	s30 10	30 80		s40 40	42 10	43 60	45 00					61 00	62 80	64 70		72 90	75 40	77 60		
	Hemisphere	s22 20	s23 70		31 90		33 90	36 00	s44 60	qc46 30	48 00	49 40	51 00	52 90			qc67 10	69 10	71 20	73 20	s80 30	82 70	85 40		
	Gray and Red Tubes	4 05	4 2.	4 55	5 45	5 65	6 00	6 45	6 85	7 05	7 30	7 45	7 65	7 85	8 95	9 15	9 30	9 45	9 70	9 95	11 00	11 35	11 60	12 30	12 65
ADVANCE	Plain	s14 00	s14 75		s19 20	s20 20	22 45	s26 20	s29 40	30 00	31 40	32 05	33 15	34 15		s41 85	43 15	45 20	45 90	47 80		s51 60	s54 60	s82 00	
	Non-Skid	s14 70	s15 50		s20 10	s21 25	23 55	s27 45	s30 80	31 45	32 85	33 70	34 65	35 85		s43 95	45 45	47 40	48 30	50 15		s54 10	s57 35	s86 00	
AJAX	Plain	s15 05	s15 90		20 45	21 45	24 80	29 65	33 30	33 90	35 30	35 90	37 50	38 00			48 30	50 10	50 70	52 60	57 70	57 75	59 90		
	Non-Skid	16 85	17 70		s23 50	24 45	27 85	32 65	36 90	37 50	38 95	39 55	41 15	41 65	50 70	51 90	53 15	54 95	55 55	57 40	62 55	62 60	64 75	86 20	87 25
	Road King	16 20	17 10		21 95	23 05	26 70		35 75	36 40	38 00	38 60	40 30	40 80	52 65	53 25	53 85	56 30	57 25	59 30	67 25	57 65	69 60		
	Gray Tubes	3 55	3 30		4 15	4 25	4 40	4 75	5 35	5 55	5 80	5 90	6 05	6 25	6 75	7 00	7 15	7 25	7 55	7 70	9 25	9 35	9 45	10 10	10 30
	Red Tubes	3 85	4 15		5 05	5 25	5 40	5 65	6 50	6 65	6 90	7 00	7 15	7 40	8 35	8 60	8 85	9 15	9 35	9 65	10 90	11 00	11 15	11 95	12 15
AMAZON	Ribbed		qs18 55		qs24 00		qc27 70			qc37 45	c40 05	c40 75					c54 25	c56 75							
	Non-Skid	qs18 50	qs19 55		qs25 25		qc29 10		qs38 35	qc39 40	42 15	c42 90				qc55 50	c57 15	c59 70	c60 50	qc63 35	c71 35		c73 80		
	Red and Gray Tubes	3 45	3 85		4 50		4 70	4 95	6 25	6 50	6 75	6 85	7 05	7 15		7 90	8 05	8 20	8 40	8 75	9 40	9 90	10 00	10 15	11 55
AMERICAN	Ribbed or Plain	15 00	16 00		20 45	22 10	26 35		32 30	33 00	34 70	35 45					47 40	49 60	50 30		58 35		61 90		
	Triple A Non-Skid	15 80	16 80		21 35	23 00	27 25		33 30	34 00	35 70	36 45					48 40	50 60	51 35	53 65	59 40	60 30	62 95		
	Seal Brown Tubes	3 00	3 25		3 75	3 80	3 85	4 20	4 65	4 80	5 00	5 15		5 60	6 20	6 25	6 30	6 40	6 55	6 70	7 65	7 75	7 90	9 35	9 50
	Red Indian Tubes	3 25	3 50		4 20	4 25	4 30	4 60	5 40	5 50	5 70	5 80	6 00	6 15	6 95	7 00	7 10	7 20	7 35	7 65	8 60	8 85	8 95	10 20	10 40
ARABIAN	Fluted Tread		qs15 60		qs20 05		24 45		s31 05	qc31 90	32 80	33 00		36 05			qc43 45	s46 75	48 45	49 05			54 40		
	Non-Skid		qs17 05		qs21 95		26 65		33 95	35 25	35 85	36 00		40 50			qc47 40	51 00	52 80	53 50			59 40		
	Tubes	3 05	3 10		3 65	3 75	3 90	4 35	4 90	5 05	5 25	5 40	5 70	5 75			6 65	6 80	7 05	7 25		8 50	8 45		
ARCADIA	Plain	qs14 00	qs15 20		s19 60		22 25	27 85	s29 80	30 40	31 65	32 60	37 60	34 55			43 40	45 25	45 95	47 90	53 25	s59 15	56 00	s99 75	s103 25
	Non-Skid		qs15 95		s20 60		23 45	29 15	31 45	31 90	33 35	34 25	39 45	36 45			45 70	47 45	48 25	50 25	55 75	s62 40	58 95	s105 00	s108 50
	Red Tubes	3 60	3 70		4 50		4 70	5 60	6 25	6 00	6 10	6 40	6 50	6 80			7 60	7 75	7 90	8 05	8 95	10 10	9 35	11 00	11 20
	Gray Tubes	3 25	3 35		4 00		4 25	4 50	5 10	4 75	4 95	5 10	5 20	5 50			6 55	6 65	6 75	6 85	7 90	8 90	8 20	9 65	9 80
ARCHER	Ribbed Tread		31 15		33 50		37 60		43 00	47 85	49 10	50 45		52 40	53 90	55 30	56 75	58 15	59 50		70 60	71 25	73 90		89 65
	Pyramid Tread		32 05		34 25		39 50		45 50	50 25	51 60	53 00		54 40	56 65	58 10	59 60	61 05	62 50		74 15	73 50	77 60		94 15
	Gray Tubes		3 05		3 75		3 85		4 75	4 85	5 00	5 15		5 30	5 95	6 15	6 25	6 45	6 65		7 80	7 95	8 10		9 45
ARMSTRONG	Red Tubes		4 00	4 50	4 75		4 95	5 20	5 90	6 00	6 10	6 25	6 40	6 55	7 65	7 80	7 95	8 10	8 35	8 60	9 45	9 60	9 75	11 60	11 75
	Plain		19 00		23 75		27 00	31 25	37 00	38 00	40 00	40 50	44 50	42 00			54 50	47 00	60 50		66 00	73 00	68 50		
	Non-Skid		21 25		26 00		31 00	34 25	40 75	42 00	43 00	43 50	48 75	46 00			59 50	62 50	66 50		72 50	80 00	74 75		
	Plain Cord				35 20		37 60	40 05	46 20	47 85	49 10	50 45			53 90	55 30	56 75	58 15	59 50		70 60		73 90		
	Non-Skid Cord				39 65		42 35	45 10	52 05	53 85	55 30	56 75			60 65	62 20	63 85	65 40	67 00		79 40		83 20		
BALTIMORE	Concord	20 17	20 64		25 07	o27 80	29 50	32 07	o34 45	35 44	o36 72	38 02	o39 47	40 75		45 72	47 23	o48 68	51 36	o52 77	o59 59	62 45	o65 12	o86 21	93 51
	Bar Tread	22 19	23 27		29 10	o30 03	33 22	36 08	o40 15	41 47	o42 68	44 22	o45 65	48 18		50 00	51 81	o54 89	59 62	o60 83	o67 76	70 40	o72 05	o89 65	104 28
	Tubes	3 25	3 34		4 30	4 45	4 60	4 95	5 45	5 55	5 75	5 95	6 05	6 20		7 25	7 45	7 60	7 85	8 10	8 90	9 15	9 45		11 05
	Wil-Lex Non-Skid		qs14 10		qs18 25	qs19 30	q21 40		qs28 00		qc29 85	qc30 65													
BATAVIA	Plain		qs15 80		qs20 05		qc23 50			qc31 95	qc33 50	qc34 30													
	Ribbed						c26 05	c29 60		qc35 55	c37 30	c38 05	qc39 80	cs40 40	cs47 45	qc49 00	c50 60	c52 90	c53 60	cs56 05	c62 05		c65 80		
	Security Tread	qs15 85	qs18 50		qs23 50	qs25 30	c27 45	c31 20	qs36 65	c37 40	c39 25	c40 10	c41 90	c42 55	cs50 00	qc51 60	c53 25	c55 65	c56 50	59 00	c65 35	c66 35	c69 25	cs106 95	s108 90
	Gray Tubes	3 25	3 35		3 80	4 00	4 20	4 50	5 40	5 55	5 75	5 90	6 00	6 10	7 15	7 25	7 30	7 40	7 60	7 80	8 90	9 05	9 25	10 10	10 40
BERGOUGNAN	Plain	s14 85	s17 70		s21 60	s22 85	25 20	s27 85	s30 90	32 85	35 20	37 20	s38 00	s40 00	s46 55	47 60	50 35	50 95	51 45	s53 05	59 45	60 70	62 35	s80 40	83 10
	Non-Skid	s16 70	s18 10		s25 20	s26 30	27 55	s29 55	s34 90	36 50	39 30	40 75	s42 65	s43 70	s52 20	52 90	53 85	55 05	56 70	s59 10	65 15	68 15	69 65	s88 75	91 80
	Red Tubes	3 75	3 80		4 45	4 80	4 85	5 20	6 05	6 25	6 60	6 75	6 95	7 15	7 35	8 10	8 20	8 30	8 65	8 90	9 70	10 00	10 15	11 15	11 20
BESAW	Blackford Non-Skid		qs15 70		qs19 95	qs21 35	c23 60		qs31 50	qc32 05	qc33 90	34 50							cs48 60						
	BeSaw Non-Skid		24 25		30 30	31 35	35 05	38 00	42 30	43 70	45 00	46 55	48 10	50 75			54 60	57 90	62 75	64 10	71 35	74 15	75 90		
	BeSaw Plain		20 50		24 90	27 65	29 30	31 80	34 30	35 55	36 90	38 15	39 30	40 50			46 95	48 40	49 70	51 10	57 80	59 40	60 90		
BOONE	Smooth		14 20		18 15	19 40	21 10		28 25	28 95	30 15	30 95		33 10	38 85		41 35	43 30	43 95		50 75		53 80		
	Ribbed Non-Skid		15 60		19 95	21 34	23 21		31 10	31 85	33 15	34 05		36 40	42 70		45 50	47 60	48 45		55 80		59 30		
	Special Non-Skid		18 50		23 50	25 30	27 45		36 65	37 40	39 25	40 10		42 55	50 00		53 25	55 60	56 50		65 25		69 25		
	Black Tubes		3 40		3 80	4 00	4 20		5 40	5 55	5 75	5 90		6 15	7 15		7 30	7 40	7 60		8 90		9 25		
	Red Tubes		3 95		4 50	4 70	4 95		6 40	6 60	6 75	6 95		7 20	8 40		8 65	8 80	8 95		10 50		10 95		
	Gray Tubes		3 05		3 45	4 65	3 80		4 90	5 05	5 25	5 35		5 55	6 50		6 65	6 75	6 90		8 10		8 40		
BOWERS	Plain	18 55	19 65		25 40	28 05	29 65	31 70	34 90	36 00	37 60	38 90	41 95	44 05			52 25	54 35	56 40		67 70	69 30	70 80		99 95
	Grip Tread	20 60	23 60		31 15	32 15	34 90	38 00	41 05	42 70	45 05	46 70	48 20	49 30			55 40	58 50	63 60		72 65	75 50	77 05		111 85
	Gray Tubes	3 30	3 80		4 10	4 35	4 60	4 85	5 95	6 10	6 40	6 50	6 60	6 75			7 70	8 10	8 40		9 50	9 70	10 00		11 75

Digitized by Google

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
BRAENDER	Plain	s15.35	s15.75	.....	20.20	s21.40	23.45	26.45	31.00	31.75	33.15	34.00	35.70	36.20	42.75	44.05	45.50	47.55	48.35	50.15	55.75	56.70	59.00	s91.25	s96.30
	Non-Skid	s17.80	s18.40	.....	23.45	s24.75	27.15	31.00	36.20	37.00	38.90	39.75	41.70	42.35	50.00	51.50	53.25	55.65	56.50	58.70	65.10	66.35	69.10	s105.80	s111.90
	Gray Tubes	3.30	3.35	.....	4.15	4.25	4.40	5.20	5.40	5.55	5.70	5.85	6.25	6.30	7.15	7.25	7.30	7.45	7.60	7.85	8.90	9.10	9.25	10.55	10.75
	Red Tubes	4.20	4.35	.....	4.95	5.10	5.45	5.90	7.05	7.25	7.45	7.65	7.80	7.90	9.25	9.40	9.50	9.70	9.85	10.20	11.55	11.85	12.05	12.75	13.05
BRUNSWICK	Plain	qs13.30	qs14.35	.....	qs18.25	s19.60	21.35	c24.20	qs28.45	c29.05	c30.45	c31.20	c32.60	c33.10	c38.85	c40.05	c41.35	c43.30	c43.95	c45.80	c50.75	c51.55	c53.80	s83.10	c92.45
	Skid Not	qs15.60	qs16.80	.....	qs21.35	qs23.00	24.95	c28.35	qs33.30	c34.00	c35.70	c36.45	c38.10	c38.70	c45.45	c46.90	c48.40	c56.60	c51.35	c53.65	c59.40	c60.30	c62.95	s103.90	c113.00
	Gray Tubes	2.85	2.90	.....	3.45	3.60	3.75	4.10	4.70	4.85	5.05	5.20	5.45	5.65	6.30	6.40	6.50	6.70	6.95	7.30	7.95	8.15	8.25	9.20	9.45
	Red Tubes	3.30	3.40	.....	4.15	4.25	4.40	4.65	5.50	5.65	5.90	6.15	6.30	6.60	7.00	7.15	7.30	7.45	7.70	8.30	8.65	8.85	9.00	10.45	10.80
	Ribbed Tread	.....	qs15.95	.....	qs20.30	.....	qc23.70	.....	qs31.65	qc32.30	qc33.90	qc34.65	.....	.....	qc43.20	qc44.55	qc46.00	qc48.05	qc48.80	.....	c56.45	.....	c59.80	.....	.....
BULL	Plain	qs15.50	qs16.10	.....	qs20.55	qs22.45	24.25	c27.35	qs31.35	q31.90	c33.75	c34.25	c35.60	cs37.35	.....	.....	cs46.95	c48.65	c49.45	cs52.00	c57.25	cs58.20	c60.35	.....	.....
	Non-Skid	qs17.40	qs18.05	.....	qs22.95	qs24.55	27.15	31.00	qs35.45	q36.05	c38.15	c38.80	c40.85	cs42.90	.....	.....	cs52.60	c54.65	c55.30	cs57.50	c67.45	cs68.70	c71.00	.....	.....
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.50	5.65	5.90	6.15	6.30	6.60	.....	.....	7.30	7.45	7.70	8.30	8.65	8.85	9.00	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.70	4.85	5.05	5.15	5.45	5.65	.....	.....	6.50	6.70	6.95	7.30	7.95	8.15	8.25	.....	.....
CAPITOL	Plaid	qs15.30	qs15.00	.....	qs19.70	qs20.45	22.90	26.55	qs29.85	c30.75	32.05	c32.65	c37.05	c34.95	.....	.....	c43.70	c45.85	c46.60	c47.95	c52.45	cs58.45	c55.55	.....	.....
	Non-Skin	qs16.35	qs15.75	.....	qs20.20	qs21.65	23.90	*28.40	qs31.35	c32.10	33.45	c34.35	c38.90	c36.40	.....	.....	c46.20	c47.90	c48.90	c50.65	c55.05	cs62.20	c58.25	.....	.....
	Redman Tubes	3.85	3.75	.....	4.60	4.65	4.80	5.10	6.05	6.15	6.45	6.70	6.85	7.00	7.80	7.85	8.05	8.15	8.25	8.50	9.80	10.10	9.90	.....	.....
	Paragum Gray Tubes	3.40	3.35	.....	3.90	4.25	4.35	5.00	5.20	5.35	5.50	5.70	6.25	6.00	7.15	6.95	7.10	7.20	7.35	7.70	8.80	9.35	9.00	.....	.....
CARLISLE	Lightning Tread	.....	.....	.....	.....	.....	qc42.35	.....	.....	qc53.65	qc55.30	qc56.65	.....	.....	c60.50	c62.15	c63.80	c65.20	c66.85	.....	c79.20	.....	c83.05	.....	cs100.65
	Red Tubes	.....	.....	.....	.....	.....	5.65	.....	.....	6.95	7.00	7.15	.....	.....	9.00	9.20	9.30	9.50	9.65	.....	11.10	.....	11.60	.....	12.90
CARSPRING	Plain	15.20	15.60	19.00	20.30	21.40	23.65	30.70	31.10	31.70	33.15	33.90	40.90	36.10	.....	.....	45.75	47.80	48.60	50.50	54.50	63.65	57.80	.....	.....
	Non-Skid	15.95	16.40	.....	21.25	22.40	24.70	32.15	32.65	33.20	34.80	35.65	42.90	37.95	.....	46.55	48.00	50.20	51.10	53.10	57.25	66.80	60.70	.....	.....
	Gray Tubes	3.25	3.30	3.75	4.15	4.20	4.25	5.00	5.25	5.35	5.50	5.65	6.35	6.05	.....	6.75	6.90	7.10	7.30	7.55	8.60	9.45	8.90	.....	.....
	Red Tubes	3.65	3.70	4.20	4.60	4.70	4.75	5.55	5.85	5.95	6.10	6.25	7.10	6.70	.....	7.50	7.70	7.85	8.10	8.40	9.50	10.45	9.85	.....	.....
CENTURY-PLAINFIELD	Ribbed	.....	19.70	.....	24.80	27.50	28.80	.....	36.35	37.60	39.30	40.15	.....	44.40	49.90	51.25	52.85	54.85	55.95	.....	63.35	65.85	66.35	.....	.....
	Non-Skid	19.50	20.15	.....	25.35	28.50	29.80	.....	38.25	39.60	41.40	42.25	.....	46.75	52.50	53.95	55.65	57.75	58.90	.....	66.70	69.30	69.85	97.25	92.50
	Tubes	3.45	3.55	.....	4.55	4.70	4.90	5.25	5.75	5.85	6.10	6.30	6.35	6.55	7.35	.....	7.90	8.05	8.35	8.60	9.45	9.65	10.00	11.45	11.65
CHAMPION	Non-Skid	15.90	15.50	.....	20.10	.....	23.55	27.45	30.80	31.45	32.85	33.70	.....	39.50	.....	43.95	45.45	47.40	48.30	55.20	54.20	61.25	67.35	.....	.....
	Gray Tubes	3.40	3.35	.....	4.15	4.20	4.25	5.30	5.25	5.35	5.50	5.65	6.40	6.60	.....	6.75	6.90	7.10	7.30	8.35	8.60	9.45	8.90	.....	.....
	Red Tubes	3.75	3.70	.....	4.60	4.70	4.75	5.90	5.85	5.95	6.10	6.25	7.10	7.25	.....	7.50	7.70	7.85	8.10	9.20	9.55	10.45	9.85	.....	.....
CHESTER	Plain	s15.50	s16.10	s20.55	.....	s22.45	24.25	27.35	s31.35	31.90	33.75	34.25	s35.60	s37.35	.....	.....	s46.95	48.65	49.45	s52.00	57.25	s58.20	60.35	.....	.....
	Non-Skid	s17.40	s18.05	.....	s22.95	s24.55	27.15	31.00	35.45	36.05	38.15	38.80	s40.85	s42.90	.....	.....	s52.60	54.65	55.30	s57.50	67.45	s68.70	71.00	.....	.....
	Red Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.50	5.65	5.90	6.15	6.30	6.60	.....	.....	7.30	7.45	7.70	8.30	8.65	8.85	9.00	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	4.10	4.70	4.85	5.05	5.15	5.45	5.65	.....	.....	6.50	6.70	6.95	7.30	7.95	8.15	8.25	.....	.....
CLEVELAND-STANDARD	Plain	.....	22.80	.....	28.25	.....	32.80	.....	40.00	41.75	43.00	45.60	.....	.....	.....	.....	55.00	56.95	59.00	.....	68.75	.....	73.80	.....	.....
	Non-Skid	24.25	24.9	.....	31.25	32.25	35.70	38.75	42.80	44.50	45.80	47.20	49.00	51.80	52.70	53.60	55.70	59.10	64.20	65.50	72.80	75.70	77.50	96.40	112.00
	Red Tubes	4.00	4.0	4.75	5.05	5.10	5.30	5.60	6.50	6.65	6.95	7.10	7.60	7.70	8.70	8.75	8.85	8.95	9.20	9.50	10.70	11.10	11.15	12.75	13.05
	Gray Tubes	3.65	3.70	4.35	4.65	4.75	4.85	5.75	5.95	6.10	6.25	6.45	6.90	6.95	7.80	7.85	7.95	8.10	8.30	8.65	9.80	9.95	10.15	11.60	11.85
COLUMBIA	Plain	15.20	15.60	19.00	20.30	21.40	23.65	30.70	31.10	31.70	33.15	33.90	40.90	36.10	.....	.....	45.75	47.80	48.60	50.50	54.50	63.65	57.80	.....	.....
	Non-Skid	15.95	16.40	.....	21.25	22.40	24.70	32.15	32.65	33.20	34.80	35.65	42.90	37.95	.....	46.55	48.00	50.20	51.10	53.10	57.25	66.80	60.70	.....	.....
	Gray Tubes	3.25	3.30	3.75	4.15	4.20	4.25	5.00	5.25	5.35	5.50	5.65	6.35	6.05	.....	6.75	6.90	7.10	7.30	7.55	8.60	9.45	8.90	.....	.....
	Red Tubes	3.65	3.70	4.20	4.60	4.70	4.75	5.55	5.85	5.95	6.10	6.25	7.10	6.70	.....	7.50	7.70	7.85	8.10	8.40	9.55	10.45	9.85	.....	.....
CONVERSE	Rough Tread	.....	.....	.....	qs28.10	qs32.90	36.10	.....	43.05	44.40	45.95	47.60	48.80	50.15	qc52.45	qc54.05	55.65	58.60	63.00	64.80	72.00	74.85	77.35	.....	.....
	Smooth Tread	.....	qs21.20	.....	qs27.30	qs30.10	31.75	.....	36.75	38.10	39.50	40.90	42.10	43.45	qc47.25	qc48.70	50.25	51.85	53.25	54.70	61.65	63.65	65.25	.....	.....
	Gray Tubes	.....	3.30	3.90	4.10	4.20	4.35	5.15	5.35	5.50	5.65	5.80	6.55	6.75	6.85	6.95	7.10	7.25	7.50	8.50	8.80	9.70	9.10	10.40	10.60
	Red Tubes	.....	3.75	4.25	4.65	4.70	4.85	5.70	5.85	6.15	6.30	6.45	7.25	7.45	7.65	7.75	7.90	8.05	8.30	9.40	9.75	10.70	11.20	11.50	11.90
CORTLAND	C. C. Plain	.....	s14.10	.....	s18.35	.....	s21.45	s23.75	s28.15	28.70	30.05	30.70	s31.50	s32.30	s38.95	s40.05	41.30	43.25	43.95	s44.75	49.35	s50.85	52.25	s68.75	s70.85
	C. C. Non-Skid	.....	s14.85	.....	s19.20	.....	22.50	s24.90	s29.45	30.10	31.40	32.25	s32.90	s33.25	s40.95	s42.05	43.45	45.35	46.20	s45.85	51.85	s52.90	54.90	s71.50	s74.50
	Yankee Plain	.....	s19.65	.....	s24.10	.....	27.70	s29.90	s35.65	37.60	38.50	39.50	s40.50	s41.50	s46.50	s47.55	48.50	51.10	54.90	s57.42	65.15	s66.85	68.85	s81.45	s83.25
	Yankee Non-Skid	.....	s21.80	.....	s26.75	.....	30.75	s33.15	s39.60	41.75	42.80	43.85	s44.95	s46.00	s51.70	s52.80	53.90	56.75	61.00	s63.80	72.35	s74.25	76.50	s90.50	s92.50
CUPPLES	Rough Tread	.....	qs22.75	.....	qs29.75	.....	qc31.75	.....	qs37.50	qs39.75	qc41.50	c42.75	.....	.....	.....	qc49.00	qc51.25	qc52.00	c57.00	.....	c64.50	.....	cs67.00	.....	.....
	Plain Tread	.....	18.75	.....	24.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Gray Tubes	.....	3.15	.....	3.80	.....	4.00	.....	5.10	5.25	5.40	5.60	.....	.....	6.70	.....	6.90	7.05	7.20	.....	8.40	8.60	8.75	.....	.....
	Red Tubes	.....	3.95	.....	4.75	.....	4.95	.....	6.40	6.60	6.75	6.95	.....	.....	.....	8.40	8.65	8.80	8.95	.....	10.50	.....	10.95	.....	.....
	Rhinos Inner Tubes	8.00	8.90	.....	10.70	.....	11.30	.....	14.00	14.50	14.90	15.40	.....	.....	18.00	.....	18.50	18.90	19.40	.....	22.50	.....	22.90	.....	.....
CURTIS	Plain	18.20	18.50	.....	24.70	.....	27.60	.....	32.25	33.45	34.65	35.85	.....	38.10	.....	.....	44.15	45.50	46.75	48.00	54.30	55.80	57.30	.....	.....
	Suction	20.70	20.90	.....	27.25	.....	33.00	.....	39.75	41.15	42.35	43.90	.....	46.20	.....	.....	51.30	52.90	57.40	59.10	65.25	66.60	71.30	.....	.....
	Gray Tubes	3.35	3.45	.....	4.00	.....	4.15	.....	5.40	5.65	5.80	5.90	.....	6.15	.....	.....	7.35	7.55	7.75	8.00	9.00	9.30	9.40	.....	.....
	Red Tubes	3.65	3.85	.....	4.45	.....	4.55	.....	6.05	6.20	6.45	6.55	.....	6.80	.....	.....	8.15	8.30	8.65	8.80	9.90	10.20	10.30	.....	.....
DAYTON	Plain	qs21.65	qs20.70	.....	qs25.20	qs27.95	29.65	.....	qs34.75	qc36.05	37.40	38.70	s39.85	41.10	s55.95	.....	47.70	49.15	50.50	51.85	s58.70	s60.40	61.90	s80.80	s92.85
	Non-Skid	qs26.30	qs24.75	.....	qs31.05	qs32.05	35.45	.....	qs42.90	qc44.30	45.65	47.25	s48.80	51.55	.....	.....	55.40	58.75	63.80	65.15	s72.60	s75.40	77.20	s96.10	s111.80
	Red Tubes	3.65	3.75	.....	4.80	4.95	5.15	.....	6.10	6.20	6.40	6.65	6.75	6.90	7.80	.....	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25
DEFIANCE	Plain	qs13.00	qs13.15	.....	17.45	s17.70	21.30	22.55	s26.95	27.70	28.55	29.15	29.95	31.10	.....	.....	39.05	41.50	42.00	43.25	.....	cs47.85	c49.65	.....	.....
	Tiger Tread	qs14.90	qs15.20	.....	19.95	s20.60	23.75	26.05	s30.20	32.30	32.80	34.10	34.60	35.05	.....	.....	43.95	47.50	49.15	53.40	.....	c53.20	c56.60	.....	.....
	Gray Tubes	3.05	3.10	.....	3.65	3.75	3.90	4.35	4.90	5.05	5.25	5.40	5.70	5.75	.....	.....	6.65	6.80	7.05	7.25	.....	8.50	8.45	.....	.....
	Red Tubes	3.15	3.45	.....	3.90	3.95	4.00	4.50	5.00	5.40	5.55	5.70	5.85	6.10	.....	.....	7.10	7.25	7.40	7.65	.....	8.20	8.30	.....	.....
	Double Wall Tubes	4.13	4.20	.....	4.97	5.11	5.32	5.88	6.65	6.86	7.14	7.35	7.77	7.70	.....	.....	9.03	9.24	9.59	9.85	.....	11.55	11.48	.....	.....

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
DELION	Plain	17.75	18.80		25.10	26.60	29.10		34.30	36.45	39.00	41.20	42.20	44.40	51.60	52.80	55.80	56.50	57.10	58.80	65.90	67.30	69.15	89.05	92.20
	Non-Skid	19.55	21.80		28.60	29.25	32.00		37.75	40.10	42.90	45.30	46.40	48.85	56.75	58.10	61.40	62.15	62.80	64.70	72.50	74.05	76.05	98.00	101.40
	Red Tubes	3.85	3.95		4.55	4.90	5.00		6.15	6.35	6.70	6.85	7.05	7.25	8.15	8.25	8.35	8.50	8.80	8.95	9.90	10.20	10.40	11.35	11.50
DIAMOND	Smooth		15.50		20.20	21.25	23.60	27.55	30.95	31.55	33.05	33.75	38.55	39.60	42.85	44.05	45.45	47.60	48.35	55.35	54.30	61.50	57.50		77.95
	Squeegee		16.35		21.10	22.35	24.75	28.90	32.40	33.10	34.55	35.50	40.55	41.60	45.05	46.25	47.80	49.90	50.80	58.15	57.05	64.50	60.40		81.85
	Gray Tubes		3.50		4.35	4.40	4.45	5.30	5.50	5.60	5.80	5.95	6.70	6.95	6.90	7.10	7.25	7.50	7.70	8.80	9.00	9.95	9.40		10.95
	Red Tubes		3.85		4.85	4.90	4.95	5.85	6.15	6.25	6.45	6.60	7.50	7.65	7.65	7.85	8.10	8.25	8.55	9.70	10.05	11.00	10.35		12.15
DOUBLE FABRIC	Ribbed Type Xtra-Ply	qs18.00	qs19.20		qs24.90	qs26.85	c29.35		qs36.20	qc39.05	c41.05	c41.90		c44.60			c52.95	c54.90	c56.65	c59.35	c69.50		c73.55		
	Duo Cord Ribbed Non-Skid	3.45	3.70		4.20	4.25	4.45		5.65	5.90	6.00	6.10		6.50			7.75	7.85	8.00	8.10	9.40		9.75	10.30	
DREADNAUGHT	Vacuum Red		qs18.85		qs23.70	qs24.90	c28.50		qs34.70	c35.30	c37.10	c37.90		cs39.95		qc48.55	c49.20	c51.45	c52.25	cs54.65	c60.05	cs61.25	c63.50		
	Ribbed Tread		qs16.75		qs21.70	qs22.95	c25.15		qs30.20	c31.35	c32.55	c32.95		cs36.20		qc42.65	c43.85	c45.80	c46.55	cs48.95	c51.25	cs52.00	c54.30		
	Super-Dreadnaught Red Tubes		3.40		4.15	4.25	4.40	4.65	5.50	5.65	5.90	6.15	6.30	6.45			7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	10.45	10.80
DRY CLIMATE	Plain		14.35		18.25	19.60	21.35	24.20	28.45	29.05	30.45	31.20	32.60	33.10	38.85	40.05	41.35	43.30	43.95	45.80	50.75	51.55	53.80		
	Non-Skid		16.80		21.35	23.00	24.95	28.35	33.30	34.00	35.70	36.45	38.10	38.70	45.45	46.90	48.40	50.60	51.35	53.65	59.40	60.30	62.95		
	Red Tubes		3.95	4.10	4.50	4.60	4.95	5.35	6.40	6.60	6.75	6.95	7.05	7.20	8.40	8.50	8.65	8.80	8.95	9.25	10.50	10.75	10.95		
	Gray Tubes		3.05	3.15	3.45	3.65	3.80	4.45	4.90	5.05	5.25	5.35	5.45	5.55	6.50	6.60	6.65	6.75	6.90	7.10	8.10	8.25	8.40		
DUNLOP	Cross Groove		26.40		30.80	32.00	34.20	36.75	40.90	44.65	46.95	49.15	51.50	54.35	55.45	57.00	57.65	61.15	61.80	64.00	68.20	71.15	73.90	83.15	
	Traction Non-Skid		29.15		35.20	37.60	38.95	41.80	49.05	50.90	56.20	58.85	61.25	63.15	63.80	66.00	68.20	70.40	72.70	75.00	84.25	88.00	89.40	97.90	103.70
	Tubes	4.80	4.85		6.15	6.25	6.40	7.20	7.70	8.00	8.25	8.55	9.05	9.05	10.45	10.45	10.70	10.95	11.20	11.50	12.90	13.35	13.35	14.75	15.15
DURAL	Red Tubes	3.65	3.75	4.20	4.55	4.70	4.85	5.10	5.95	6.15	6.30	6.45	6.95	7.10	8.40	7.85	8.05	8.25	8.45	8.65	9.50	9.75	9.90	11.50	11.90
	Gray Tubes	3.25	3.30	3.65	3.80	3.95	4.10	4.30	5.00	5.30	5.50	5.70	5.95	6.15	7.25	6.95	7.20	7.35	7.55	7.85	8.45	8.70	8.95	10.00	10.30
EHMAN	Track Tread	14.45	14.10		18.25	19.30	21.40	24.95	28.00	28.60	29.85	30.65	35.00	35.90		39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15		
	Non-Skid Worm Drive Tread	15.15	14.80		19.15	20.25	22.45	26.20	29.40	30.05	31.35	32.20	36.75	37.70		41.95	43.35	45.25	46.10	52.70	51.70	58.50	54.75		
	Gray Tubes	3.10	3.05		3.75	3.80	3.85	4.55	4.75	4.85	5.00	5.15	5.80	6.00		6.15	6.25	6.45	6.65	7.60	7.80	8.60	8.10		
	Red Tubes	3.40	3.35		4.20	4.25	4.30	5.05	5.30	5.40	5.55	5.70	6.45	6.60		6.80	7.00	7.15	7.35	8.35	8.70	9.50	8.95		
	Gray Universal Tube		3.45		3.45																				
	Red Universal Tube		3.80		3.80																				
EMPIRE	Smooth Gray		qs17.70		22.45		qs25.90	28.85		35.25	36.80	37.40					51.20	53.35							
	Non-Skid Gray	17.60	18.50		23.50	24.65	27.45	31.15	36.40	37.05	38.70	39.40	41.05	41.30	50.35	51.60	53.25	55.65	56.50	59.00	65.35	66.35	69.25		
	Non-Skid Red	19.50	20.50		26.05	27.40	30.45	34.60	40.40	41.20	33.00	43.70	45.60	45.85	55.95	57.30	59.10	61.80	62.75	65.55	72.60	73.70	76.90		
	Cord Non-Skid									56.55		59.60			63.70	65.35	68.65	68.65	70.35		83.40		87.40		
	Gray Tubes	3.30	3.35		3.90	4.05	4.10	4.30	5.40	5.55	5.65	5.85	6.00	6.15	7.10	7.25	7.45	7.45	7.55	7.75	8.90	9.00	9.25		10.05
	Red Tubes	3.80	4.00		4.45	4.60	4.75	5.10	6.10	6.20	6.50	6.65	6.80	7.05	8.00	8.15	8.55	8.55	8.75	8.90	10.45	11.00	11.10		12.20
ENDURANCE	Ball Bearing Non-Skid		qs20.35		qs26.15		qc30.25		s39.90	q-40.70	c42.65	c44.00				qc56.65	qc58.30	qc61.05	c61.90		c69.85	cs71.75	c74.00		
	Gray Tubes	3.45	3.60	3.85	4.05	4.20	4.25	4.60	5.50	5.60	5.70	5.95	6.15	6.15	7.30	7.30	7.35	7.55	7.70	7.85	9.10	9.30	9.30	10.50	10.65
	Red Tubes	3.85	3.90	4.35	4.90	5.00	5.10	5.75	6.15	6.40	6.60	6.80	7.25	7.25	8.35	8.35	8.55	8.75	8.95	9.20	10.30	10.65	10.65	11.75	12.10
FALLS	Ribbed		23.60		30.70		33.00		42.60	45.70	47.25	49.00					59.10	60.20	62.50						
	"Neverslip" Non-Skid		25.30		32.80	34.40	35.30		45.40	48.90	50.25	51.85		54.85	58.30	60.50	62.50	63.80	64.70	68.00	79.65	81.30	82.90	98.50	99.50
	Pure Gum Green Tubes	4.80	5.00		6.80	7.05	7.20		8.95	9.20	9.45	9.70	9.90	10.20	11.25	11.50	11.85	12.15	12.45	12.75	13.95	14.30	14.55	16.40	17.10
FEDERAL	Plain	qs14.30	qs13.90		qs18.05	qs19.10	s21.10	qc24.70	qs27.00	q-28.20	c29.60	c30.20	qc34.45	c32.20		qc39.40	c40.65	c42.50	c43.20	c44.95	c48.50		c51.45		
	Traffik Tread	qs14.95	qs14.60		qs18.90	qs20.00	s22.15	qc25.85	qs29.00	qc29.65	c30.90	c31.70	qc36.20	c33.80		qc41.30	qc42.80	qc44.65	qc45.40	qc47.20	qc50.95		c53.95		
	Rugged Tread	qs16.85	qs16.40		qs21.30		24.90	qc29.05	qs32.60	qc33.35	c34.75	c35.70	qc40.70	c38.00		qc46.50	c48.15	c50.20	c51.05	c53.15	c57.30		c60.70		
	Cord Non-Skid						qc42.45			qc53.95		qc56.90					qc64.00	qc65.50	qc67.15		qc79.60		qc83.40		
	Gray Tubes	3.10	3.05		3.75	3.80	3.95	4.70	4.85	5.05	5.05	5.30	5.65	5.65		6.35	6.55	6.55	6.80	7.05	8.00	8.30	8.30		
	Red Skin Tubes	3.70	3.45		4.35	4.40	4.55	5.45	5.55	5.80	5.80	6.10	6.55	6.55		7.25	7.50	7.50	7.85	8.10	9.20	9.50	9.50		
FIRESTONE	Round Tread	14.85	15.55		19.75	21.50	23.50	26.20	31.00	31.50	33.00	34.00	34.80	35.50	42.75	44.00	45.50	47.50	48.50	50.00	56.00	57.00	59.00		
	Non-Skid	16.90	18.00		23.00	24.60	27.15	29.65	36.20	37.00	39.00	40.00	41.25	42.50	50.00	51.50	53.00	55.00	56.50	59.00	65.00	66.50	69.00		
	Gray Tubes	3.15	3.20		3.80	3.95	4.20	4.50	5.20	5.35	5.55	5.65	5.75	5.90	6.90	7.05	7.15	7.35	7.65	7.90	8.75	8.95	9.05		
	Red Tubes	3.80	3.95		4.60	4.75	5.00	5.30	6.25	6.40	6.65	6.80	6.95	7.25	8.25	8.50	8.75	9.00	9.25	9.50	9.90	10.10	10.35		
	Triple Tread				38.75		41.25			52.75	54.00	55.50			59.25	60.75	62.50	64.00	65.50		77.75		81.25		98.50
	Non-Skid				41.75		44.50			56.50	58.00	59.50			63.75	65.25	67.00	68.75	70.25		83.50		87.50		106.00
	Gray Tubes				3.80		4.20			5.35	5.55	5.65			6.90	7.05	7.15	7.35	7.65		8.75		9.05		
	Red Tubes				4.60		5.00			6.40	6.65	6.80			8.25	8.50	8.75	9.00	9.25		9.90		10.35		13.00
FISK	Plain		qs16.15		qs20.95		24.55		qs32.20	qc32.75	qc34.30	qc35.10				qc45.75	qc47.20	qc49.45							
	Gray and Black Non-Skid	qs16.20	qs17.00		qs22.00	qs23.20	25.75	qc30.40	qs33.80	qc34.40	qc36.00	c36.85	qc42.40	c43.30	qc50.95	qc48.05	c49.55	c51.90	c52.75	cs60.70	c59.25		c62.75		
	Red Non-Skid		qs19.10		qs24.75		29.00		qs38.05	qc38.70	qc40.50	qc41.45					qc55.75	qc58.40							
	Ribbed Cord											qc55.50					qc62.45	qc63.95	qc65.45		c77.65		qc81.30		
	Non-Skid Cord						qc44.50			qc56.55	qc58.05	qc59.60			qc70.05	qc65.35	c67.05	c68.65	c70.35		c83.40	qc94.65	c87.40		
	Gray Tubes	3.25	3.25		4.00	4.15	4.25	4.55	5.00	5.45	5.45	5.75	6.00	6.30	6.95	6.95	7.25	7.25	7.50	7.80	8.90	9.25	9.25		
G & J	Plain	14.00	15.20		19.75	20.75	22.90	28.30	30.20	30.85	32.25	33.05	37.80	38.35			44.45	46.50	47.20	53.65	53.05	58.75	56.20		
	"G" Anti-Skid	14.70	15.95		20.70	21.80	24.05	29.75	31.70	32.40	33.90	34.65	39.65	40.25			46.70	48.80	49.55	56.35	55.65	61.70	59.10		
	Stalwart Tread		18.05		23.50	24.70	27.00		36.90	37.55	39.50	40.40				51.85	53.65	56.05	56.85		63.65		67.40		
	Cord						43.40			55.15	56.55	58.15			61.95	63.75	65.55	67.10	68.65		81.35		85.15		
	Gray Tubes	3.15	3.30		4.15	4.25	4.40	4.75	5.35	5.50	5.65	5.75	6.00	6.20	6.75	7.05	7.10	7.25	7.55	7.80	8.80	8.95	9.15		
	Red Tubes	4.00	4.10		5.10	5.30	5.40	5.90	6.60	6.65	6.75	6.85	7.20	7.30	8.70	8.80	8.90	9.05	9.25	9.35	10.60	10.90	11.10		

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	31x4	32x4	33x4	34x4	35x4	36x4	32 4½	33 4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
GENERAL	Plain		18.95		23.15		28.80	32.75	37.60	38.15	40.50	41.20	42.75	43.35			50.70	53.15	55.30	58.80	65.35	67.10	67.55		
	Non-Skid Fabric	20.20	21.50		27.25	29.35	32.40	37.00	42.50	43.35	45.80	46.65	49.05	49.85		57.40	59.00	62.10	63.00	65.65	73.35	76.40	77.45		
	Gray Tubes	3.40	3.50		4.05	4.30	4.60	4.90	5.80	6.00	6.15	6.35	6.60	6.95	7.80	8.00	8.05	8.25	8.65	9.00	9.75	10.00	10.20		11.65
	Red Tubes	3.90	3.95		4.95	5.10	5.30	5.65	6.75	6.95	7.35	7.55	7.70	8.20	8.55	8.80	9.00	9.25	9.55	10.40	10.50	10.65	10.95		13.35
	Rib Tread Cord						qc42.30			qc53.85	qc55.25	qc56.75			c60.65	qc62.20	c63.85	qc65.40	c66.95		c79.40		c83.15		
	Non-Skid Cord						qc44.50			qc56.55	qc58.00	qc59.60			c63.70	qc65.35	c67.05	qc68.75	c70.35		c83.40		c87.40		
GILLETTE SAFETY	Plain	14.90	13.85		17.95		21.10		28.20	28.70	30.05	30.50		32.25			41.40	43.30	43.95		50.70	56.25	52.35		
	Ribbed		15.60		21.35		24.10		31.50	32.05	33.90	34.50		36.90			46.80	48.65	49.20		57.85	57.85	61.05		
	5 000-Mile Non-Skid	18.35	19.50		24.75		29.45		38.65	39.40	41.65	42.40		45.30			56.20	59.15	60.00		71.25	72.75	73.75		
	Plain Cord				35.20		37.60		46.20	47.85	49.10	50.45			53.90	55.30	56.75	58.15	59.50		70.60		73.90		
	Non-Skid Cord				39.65		42.35		52.05	53.85	55.30	56.75			60.65	62.20	63.85	65.40	67.00		79.40		83.20		
	Gray Tubes	2.75	3.00		3.75		4.00	4.30	4.85	5.00	5.15	5.25	5.45	5.65			6.45	6.60	6.85		8.00	8.15	8.30		
	Hard Service Red Tubes		3.70		4.65		4.90	5.35	6.00	6.05	6.15	6.30	6.55	6.55			8.10	8.25	8.40		9.65	9.90	10.00		
GLOBE	Plain	19.90	s19.55	24.65	25.45	s28.15	28.95	31.50	34.50	34.90	36.60	38.35	38.75	39.60	43.75	qc45.60	47.25	48.70	50.10	51.50	57.80	59.70	61.10	79.50	81.10
	Good Grip Non-Skid	22.35	s22.25	27.35	28.15	s30.75	32.45	36.25	38.10	38.75	40.45	41.20	42.90	43.25	47.50	qc50.80	53.05	56.15	59.55	61.60	66.50	67.85	72.60	90.65	97.25
	Red Tubes	3.50	3.65	3.95	4.25	4.45	4.50	4.75	5.95	6.15	6.35	6.50	6.60	6.85	7.75	7.85	8.00	8.10	8.35	8.50	9.50	9.80	9.90	11.00	11.20
	Gray Tubes	3.05	3.25	3.50	3.85	3.95	4.00	4.20	5.30	5.40	5.65	5.75	5.90	6.05	6.90	6.95	7.10	7.20	7.40	7.50	8.50	8.65	8.80	9.80	10.00
GOODRICH	Plain		qs15.20		qs19.60	qs20.70	qc23.05		qs30.25	qc30.80	qc32.15	qc32.95				qc42.90	qc44.35	qc46.40	c47.10		qc52.90		qc55.90		
	Safety Tread		qs15.85		qs20.65	qs21.80	24.25		qs31.75	c32.30	c33.70	c34.55			c43.85	qc45.05	c46.60	c48.60	c49.40		c55.55		c58.80		
	Gray Tubes		3.45		4.20	4.30	4.35		5.35	5.45	5.65	5.80		6.75	6.70	6.90	7.05	7.25	7.50	8.55	8.80	9.70	9.10		10.65
	Brown Tubes		3.80		4.60	4.75	4.80		5.90	6.00	6.20	6.40		7.45	7.35	7.60	7.75	8.00	8.25	9.40	9.70	10.65	10.00		11.70
	S. S. Silvertown Ribbed Tread						39.30			50.00	51.30	52.75			56.35	57.80	59.30	60.75	62.20		73.75		77.25		93.65
	Q. D. Silvertown Ribbed Tread						41.35			52.65	54.00	55.50			59.30	60.85	62.40	63.95	65.45		77.65		81.30		98.60
	S. S. Silvertown Safety Tread						41.25			52.50	53.85	55.40			59.15	60.70	62.25	63.80	65.30		77.45		81.10		98.35
	Q. D. Silvertown Safety Tread						43.40			55.30	56.70	58.30			62.25	63.90	65.50		68.70		81.55		85.35		103.55
GOODYEAR	Plain		qs15.80		qs20.05	qs21.55	q23.50		qs31.30	qc31.95	qc33.50	q34.30			qc42.75	qc44.05	c45.50	qc47.65	qc48.35		c55.80				
	All-Weather		qs18.50		q23.50	qs25.30	27.45	qc31.20	q36.65	c37.40	c39.25	40.10	qc41.90	c42.55	qc50.00	qc51.60	c53.25	c55.65	c56.50	qc59.00	c65.35	c66.35	c69.25		
	Ribbed Tread Cord				q38.70		qc41.35		qc50.80	qc52.65	qc54.00	qc55.50			qc59.30	qc60.85	c62.40	qc63.95	c65.45		c77.65		c81.30		c98.60
	All-Weather Cord				q41.65		qc44.50		qc54.60	qc56.55	qc58.00	qc59.60			qc63.70	qc65.35	c67.05	qc68.75	c70.35		c83.40		c87.40		c105.95
	Regular Tubes		3.35		3.90	4.00	4.20	4.60	5.40	5.55	5.80	5.90	6.00	6.15	7.15	7.30	7.40	7.50	7.65	7.85	8.95	9.15	9.30		
	Heavy Tourist Tubes		4.35		4.95		5.45		7.05	7.25	7.45	7.65			9.30	9.45	9.60	9.75	9.85		11.55	11.80	12.05		13.10
GORDON	Lotraction Tread		s20.90		s23.80		qc27.90		s33.60	qc36.05	qc37.00	qc38.05					qc47.95	qc49.95	qc51.95		s62.25		s65.65		
	Triangle Tread	qs18.30	qs21.40		qs25.00	qs26.40	qc29.15		qs35.50	c38.00	c39.00	c40.25	c41.50	c42.75		c50.10	c51.95	c52.85	c53.90	c56.30	c65.25	c67.25	c66.95		
	Gray Tubes	3.40	3.55		4.05	4.30	4.45	4.80	5.75	5.95	6.10	6.25	6.35	6.50		7.70	7.80	7.90	8.05	8.35	9.45	9.70	9.85		
	Red Tubes	3.85	3.95		4.50	4.75	4.95	5.35	6.40	6.60	6.75	6.95	7.05	7.20		8.50	8.65	8.80	8.95	9.25	10.50	10.75	10.95		
GREEN BAY	Non-Skid		16.80		21.35	23.00	24.95		33.30	34.00	35.70	36.45					48.40	50.60	51.35				62.95		
	Gray Tubes		3.05		3.45	3.65	3.80		4.90	5.05	5.25	5.35					6.50	6.75	6.90				8.40		
	Red Tubes		3.40		3.95	4.15	4.20		5.35	5.50	5.70	5.95					7.25	7.40	7.55				9.10		
	Ribbed Tread		15.00		19.00																				
GRYPHON	Non-Skid	15.60	15.00		19.25	20.70	22.85	27.10	29.95	30.65	31.90	32.80	37.10	34.75		42.45	44.10	45.75	46.65	48.35	52.55	59.40	55.60		
	Red Tubes	3.70	3.55	4.00	4.40	4.45	4.55	4.90	5.80	5.90	6.15	6.40	6.55	6.65	7.45	7.50	7.65	7.75	7.90	8.15	9.35	9.65	9.45		
	Gray Tubes	3.25	3.20	3.70	3.75	4.05	4.15	4.80	5.00	5.10	5.25	5.45	6.00	5.70	6.85	6.60	6.75	6.90	7.05	7.35	8.40	8.95	8.60		
HAMILTON	Heavy Red Antimony Tube	3.95	4.05	4.25	4.85	4.90	5.05	5.35	6.30	6.40	6.50	6.80	7.00	7.15	7.90	8.00	8.10	8.30	8.55	8.70	9.60	9.85	10.00	10.85	12.00
HANES	Plain	14.45	15.00		18.85	20.50	22.10	24.80	27.80	28.30	29.95	30.40	31.60	32.15			41.70	43.20	43.90	45.70	50.85	51.75	53.65		
	Non-Skid	16.10	16.65		20.95	22.35	24.60	27.95	31.50	32.05	33.90	34.50	36.30	36.90			46.75	48.60	49.20	51.05	59.95	61.05	63.10		
	Tubes	3.10	3.20		3.80	3.95	4.10	4.30	5.05	5.30	5.55	5.70	5.85	6.00			7.15	7.35	7.60	7.80	8.45	8.65	8.95		
HARDMAN SENIOR	Plain		s20.75	s24.00	s25.20	s27.90	29.70	34.00	s36.00	37.10	39.10	40.40	41.85	43.90	s47.75	49.40	51.35	53.25	55.25	57.75	61.30	s65.25	67.00	s86.35	s89.50
	Non-Skid	25.00	s23.50	s27.00	s28.00	s31.00	33.10	27.35	s40.00	41.15	43.50	44.90	47.15	48.85	s54.15	56.05	58.20	60.35	62.50	64.25	71.70	s74.80	76.00	s95.50	s99.50
	Red Tubes		3.95	4.35	5.00	5.10	5.35	5.85	6.30	6.50	6.75	6.95	7.30	7.40	8.40	8.50	8.70	8.90	9.20	9.35	10.45	10.75	10.90	12.50	12.75
HARDMAN JUNIOR	Plain		s15.50	s19.50	s20.35	s21.50	22.85	26.00	s27.75	29.50	31.40	32.45	34.90	36.50	s42.35	43.45	45.10	46.20	48.25	50.00	54.20	s56.00	58.00		
	Non-Skid	18.00	s16.75	s22.00	s21.50	s22.50	24.15	29.40	s29.00	30.25	32.45	34.00	36.00	38.00	s44.00	45.00	46.75	47.85	49.50	51.60	56.00	s58.00	60.00		
	Gray Tubes		3.75		4.30	4.40	4.50	4.85	5.75	5.85	6.00	6.20	6.40	6.45	7.55	7.60	7.70	7.85	8.05	8.20	9.35	9.50	9.60		
HARTFORD V	Plain	14.00	15.20		19.75	20.75	22.90	28.30	30.20	30.85	32.25	33.05	37.80	38.35			44.45	46.50	47.20	53.65	53.05	58.75	56.20		
	"H" Anti-Skid	14.70	15.95		20.70	21.80	24.05	29.75	31.70	32.40	33.90	34.65	39.65	40.25			46.70	48.80	49.55	56.35	55.65	61.70	59.10		
	Strongheart Tread		18.05		23.50	24.70	27.00		36.90	37.55	39.50	40.40				51.85	53.65	56.05	56.85		63.65		67.40		
	Cord						43.40			55.15	56.55	58.15			61.95	63.75	65.55	67.10	68.65		81.35		85.15		
	Gray Tubes	3.15	3.30		4.15	4.25	4.40	4.75	5.35	5.50	5.65	5.75	6.00	6.20	6.75	7.05	7.10	7.25	7.55	7.80	8.80	8.95	9.15		
	Red Tubes	4.00	4.10		5.10	5.30	5.40	5.90	6.60	6.65	6.75	6.85	7.20	7.30	8.70	8.80	8.90	9.05	9.25	9.35	10.60	10.90	11.10		
HAWKEYE	Santa Fe Plain		14.47		17.85		21.12		27.83	29.15	30.80	31.30		33.28		40.70	41.53	43.34	44.06	45.93	50.38	51.32	53.13		
	Santa Fe Non-Skid				19.97		23.60		31.52	32.12	33.83	34.54		*36.69		44.39	45.49	47.41	47.91	49.72	55.88	56.82	58.63		
	Ribbed Tread and Non-Skid	19.47	20.96		26.57		30.75		40.70	41.53	43.78	44.61		46.59		51.81	54.07	57.09	61.77	62.76	68.81	71.83	73.48		
	Red Tubes	3.25	3.35		4.00	4.25	4.35	4.45	5.40	5.55	5.70	5.95	6.20	6.30		7.10	7.25	7.30	7.60	7.80	8.60	8.80	8.90		
	Gray Tubes	2.80	2.90		3.45	3.60	3.70	3.90	4.70	4.85	5.00	5.20	5.35	5.45		6.35	6.40	6.50	6.05	6.85	7.70	7.85	8.05		
HENDRIE	Plain	13.50	14.40	16.85	18.70	19.75	21.75	26.25	28.70	29.25	31.25	32.05	32.90	33.45	39.60	40.45	41.75	42.35	43.75	46.15	51.50	53.00	54.50	68.95	71.25
	Non-Skid	15.75	16.90	19.80	21.55	22.60	25.50	28.75	33.00	34.75	36.80	37.35	37.70	38.05	47.50	48.40	49.10	51.35	52.15	54.20	62.00	63.50	65.00	81.40	83.60
	Hendrie Gray Tube	2.70	2.85	3.10	3.50	3.60	3.75	3.90	4.60	4.90	5.00	5.20	5.40	5.50	6.20	6.35	6.45	6.55	6.75	6.90	7.85	7.95	8.10	8.45	8.65
	California Red Tube	3.25	3.50	3.75	4.05	4.30	4.40	4.60	5.50	5.65	5.95	6.10	6.25	6.50	7.20	7.45	7.50	7.70	7.80	8.05	9.15	9.30	9.40	9.90	10.00

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
HIGHWAY	Non-Skid	qs16.35	qs15.70	.....	qs20.40	.....	c23.90	.....	qs31.35	qc32.10	c33.45	c34.35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Red Tubes	3.85	3.75	4.20	4.60	4.65	4.80	.....	6.05	6.15	6.45	6.70	6.85	7.00	7.80	7.85	8.05	8.15	8.25	8.50	9.80	10.10	9.90	.....	.....
	Gray Tubes	3.40	3.35	3.85	3.90	4.25	4.35	.....	5.20	5.35	5.50	5.70	6.25	6.00	7.15	6.95	7.10	7.20	7.35	7.70	8.80	9.35	9.00	.....	.....
HOOD	Plain	20.30	20.80	22.35	27.50	29.45	30.95	33.10	36.20	36.85	37.55	38.50	39.60	40.65	53.00	53.80	55.95	57.40	58.50	59.85	68.85	70.20	71.35	91.50	92.50
	Non-Skid	24.30	24.85	27.00	31.50	34.15	35.45	37.95	43.75	44.65	45.85	46.75	48.95	51.45	61.05	61.95	62.60	63.90	64.50	65.75	76.30	77.40	79.00	96.50	100.65
	Ribbed Tread	24.00	24.55	.....	31.00	33.60	34.90	.....	42.90	43.75	44.95	45.80	.....	.....	60.05	60.95	61.60	62.90	63.50	.....	75.30	76.40	78.00	95.55	99.65
	Puritan Plain	qs.....	qs16.75	.....	qs19.00	qs20.35	21.45	c24.20	qs28.90	c29.70	c30.45	c31.15	c32.30	c33.45	.....	c40.55	c41.75	c43.30	c44.00	c45.70	c51.15	cs52.95	c53.75	.....	.....
	Puritan Gripper Non-Skid	qs.....	qs18.95	.....	qs21.85	qs23.50	25.25	c28.85	qs35.30	c35.75	c36.20	c36.85	c37.65	c39.05	.....	c47.80	c48.85	c50.50	c51.15	c52.65	c58.50	cs60.25	c61.45	.....	.....
	Hood Red and Gray Tubes	3.40	3.45	.....	4.05	4.20	4.40	4.80	5.15	5.25	5.35	5.50	5.90	6.30	6.85	6.95	7.05	7.15	7.25	7.60	8.30	8.45	8.60	10.00	11.00
HOWE	Ribbed Tread	.....	qs21.90	.....	qs26.45	.....	.....	.....	qs39.20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Non-Skid	.....	.....	.....	.....	.....	qc34.55	.....	.....	qc45.55	qc46.70	c48.10	.....	qc52.90	qc54.80	qc55.85	c58.30	c60.90	c63.80	.....	c72.45	c75.60	c77.25	.....	.....
	Red Tubes	3.90	4.00	4.20	4.80	4.85	5.00	5.30	6.20	6.40	.....	6.60	6.80	6.95	8.40	8.60	8.80	9.10	9.20	9.40	10.65	11.10	11.30	11.95	12.10
	Gray Tubes	3.20	3.30	3.50	3.85	3.95	4.15	4.35	5.25	5.35	.....	5.65	5.95	6.05	6.70	6.75	6.90	7.10	7.30	7.60	8.60	8.80	8.90	10.10	10.40
INDIANA	Plain	13.50	14.00	18.25	17.90	19.55	21.10	23.80	27.85	28.35	30.00	30.45	31.65	37.90	.....	40.85	41.75	43.25	43.95	53.75	50.90	51.75	53.65	.....	.....
	Button and Traction Non-Skid	15.15	15.70	20.75	19.95	21.35	23.60	26.95	31.50	32.05	33.90	34.50	36.30	43.40	.....	46.35	46.75	48.60	49.15	60.00	59.95	61.05	63.10	.....	.....
	Gray Tubes	2.85	2.90	3.35	3.45	3.60	3.75	3.95	4.60	4.85	5.05	5.20	5.35	5.45	.....	6.40	6.50	6.70	6.95	7.10	7.70	7.90	8.15	.....	.....
	Brown Tubes	3.30	3.40	3.80	4.15	4.25	4.40	4.65	5.50	5.65	5.90	6.15	6.30	6.45	.....	7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	.....	.....
KELLY-SPRINGFIELD	Plain	.....	qs22.15	.....	qs29.75	31.55	.....	qs37.85	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	cs111.65
	Driving Tread	.....	.....	.....	.....	.....	.....	.....	qs42.55	c43.70	c44.95	c46.20	c56.00	c57.00	c51.45	c53.45	c55.45	c58.05	c63.95	c72.30	c72.20	c75.55	c76.95	.....	cs111.65
	Kant-Slip Tread	qs29.50	qs26.35	.....	.....	qs34.10	37.65	c43.10	s45.40	c49.50	c51.00	c52.75	c59.00	c60.00	c57.40	c59.65	c61.80	c65.50	c71.10	c75.60	c80.90	84.05	86.05	cs120.00	cs124.50
	Red Tubes	4.05	4.25	4.40	.....	5.50	5.70	6.05	6.70	6.85	7.10	7.40	7.50	7.65	8.65	8.95	9.20	9.40	9.75	10.05	11.05	11.25	11.70	13.35	13.60
KNIGHT	Blackstone Non-Skid	.....	17.45	.....	22.25	23.70	26.25	.....	35.05	35.65	37.70	38.35	.....	41.05	.....	46.35	46.75	48.60	49.20	.....	59.95	.....	63.10	.....	.....
	Knight Plain	.....	22.55	.....	27.95	30.05	30.80	33.45	37.20	38.45	.....	41.05	.....	43.25	.....	47.40	48.75	50.00	52.20	54.50	61.00	62.25	64.75	.....	.....
	Knight Non-Skid	.....	25.00	.....	31.30	32.30	35.70	38.80	43.15	44.55	45.90	47.50	.....	51.80	.....	53.70	55.65	59.00	64.05	65.40	72.85	75.65	77.45	96.35	112.05
	Blackstone Tubes	.....	3.40	.....	3.95	.....	4.20	.....	5.30	5.45	5.60	5.85	6.05	6.10	.....	7.00	7.05	7.25	7.35	.....	8.55	8.70	8.85	11.55	13.20
	Knight Red Tubes	.....	3.70	.....	4.60	4.65	4.80	.....	5.95	6.15	6.30	6.45	6.90	6.95	7.90	.....	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
KOKOMO	Plain	qs16.85	qs17.50	.....	qs22.35	.....	q26.10	.....	qs34.80	qc35.50	c37.30	c38.00	.....	c40.40	.....	.....	c50.60	c52.85	c53.65	c56.00	.....	.....	.....	.....	.....
	Gridiron Non-Skid	qs17.75	qs18.50	.....	qs23.50	.....	q27.45	.....	qs36.65	qc37.40	c39.25	c40.10	.....	c42.55	.....	.....	c53.25	c55.65	c56.50	c59.00	.....	.....	.....	.....	.....
	Standard Gray Tubes	2.90	3.05	3.25	3.60	3.80	3.85	4.05	4.75	4.80	5.00	5.15	5.30	5.45	.....	.....	6.20	6.35	6.60	6.85	7.80	8.10	8.35	8.80	.....
	Standard Red Tubes	3.25	3.35	3.50	4.05	4.25	4.30	4.50	5.30	5.40	5.50	5.65	5.95	6.10	.....	.....	7.00	7.10	7.35	7.60	8.65	8.80	9.00	9.70	.....
	Everlaster Gray Tubes	3.45	3.55	3.95	4.30	4.45	4.50	5.00	5.60	5.65	5.85	6.05	6.20	6.45	.....	.....	7.35	7.55	7.80	8.05	9.15	9.30	9.50	10.85	.....
	Everlaster Red Tubes	3.75	3.90	4.45	4.80	4.95	5.05	5.25	6.20	6.30	6.50	6.65	6.90	7.15	.....	.....	8.10	8.50	8.60	8.95	10.15	10.20	10.50	12.05	.....
LANCASTER	Clingstone Plain	14.75	15.85	.....	20.65	21.70	24.25	.....	31.75	32.30	33.70	34.55	35.60	36.75	.....	.....	46.60	48.60	49.40	50.25	55.55	.....	58.80	.....	.....
	Clingstone Tubes	2.95	3.35	.....	4.05	4.15	4.25	.....	5.20	5.30	5.50	5.65	5.90	6.15	.....	.....	6.85	7.05	7.30	7.50	8.55	8.75	8.85	.....	.....
	Lancaster Plain	.....	24.10	.....	29.25	32.45	34.40	.....	40.25	41.75	43.30	44.80	46.10	47.55	52.40	53.30	55.15	56.80	58.35	59.90	67.80	69.75	71.45	.....	.....
	Lancaster Wiregrip	.....	26.25	.....	32.85	33.90	37.50	.....	45.30	46.80	48.20	49.90	51.50	54.10	55.35	56.40	58.45	61.95	67.25	68.70	76.50	79.45	81.35	.....	.....
LEE	Standard Plain	16.55	15.70	20.75	.....	21.30	23.50	29.50	31.00	32.00	33.05	34.25	37.35	37.70	44.90	44.15	45.55	47.70	48.40	51.40	55.90	61.30	59.15	84.00	84.75
	Standard Non-Skid	18.20	17.25	22.80	.....	23.45	25.85	32.45	34.10	35.20	36.35	38.70	41.05	41.45	49.35	48.55	50.15	52.50	53.25	56.54	61.50	67.45	65.05	92.40	93.20
	Puncture Proof Plain	28.30	28.25	31.70	.....	36.25	37.55	42.89	44.95	49.15	50.85	52.50	55.50	56.45	61.45	62.80	65.55	68.00	69.35	71.85	75.05	76.15	77.20	91.35	93.55
	Puncture Proof Non-Skid	31.10	31.10	34.90	.....	39.85	41.30	47.20	49.45	54.05	55.95	57.75	61.05	62.05	67.60	69.10	72.10	74.80	76.30	79.05	82.55	83.75	84.90	100.50	102.90
	Groove Tread Cord	.....	.....	.....	.....	.....	.....	.....	.....	qc52.65	.....	qc55.50	.....	.....	qc59.30	.....	qc63.40	qc63.95	qc65.45	.....	qc77.65	.....	qc81.30	.....	.....
	Zig Zag Tread Cord	.....	.....	.....	.....	.....	.....	.....	.....	qc56.65	.....	qc59.60	.....	.....	qc65.35	.....	qc67.05	qc68.65	qc70.35	.....	qc83.40	.....	qc87.40	.....	.....
	Gray Tubes	3.40	3.35	3.75	.....	4.40	4.50	5.00	5.50	.....	5.75	5.95	6.40	6.60	7.15	6.75	6.85	7.10	7.30	7.60	8.60	8.75	8.90	10.15	10.40
	Red Tubes	3.75	3.70	4.20	.....	4.80	4.90	5.55	6.00	.....	6.25	6.50	7.10	7.15	7.90	7.50	7.70	7.85	8.10	8.40	9.55	9.75	9.85	11.65	11.90
LIBERTY	Plain	.....	15.95	.....	20.30	.....	23.70	.....	31.65	32.30	33.90	34.60	.....	.....	.....	.....	46.00	48.05	48.80	.....	.....	.....	59.80	.....	.....
	Non-Skid	.....	16.80	.....	21.35	.....	24.95	.....	33.30	34.00	35.70	36.45	.....	.....	.....	.....	48.40	50.60	51.35	.....	.....	.....	62.95	.....	.....
	Gray Tubes	.....	3.05	.....	3.45	.....	3.80	.....	4.90	5.05	5.25	5.35	.....	.....	.....	.....	6.65	6.75	6.90	.....	.....	.....	8.40	.....	.....
	Red Tuber	.....	3.40	.....	3.95	.....	4.20	.....	5.35	5.50	5.70	5.95	.....	.....	.....	.....	7.30	7.40	7.55	.....	.....	.....	9.10	.....	.....
McCREARY	Plain Tread	17.50	18.55	22.45	24.35	26.25	28.85	32.25	37.95	38.90	40.00	41.65	.....	42.40	.....	52.40	.....	57.05	57.70	60.25	66.10	.....	69.45	.....	.....
	Non-Skid	19.75	20.25	.....	26.60	28.70	31.50	.....	41.55	41.65	43.90	44.90	.....	48.75	52.55	54.15	57.60	60.60	61.50	64.10	73.00	.....	75.60	.....	.....
	Gray	3.05	3.10	3.55	3.70	3.90	4.05	4.30	5.00	5.25	5.45	5.60	.....	5.90	.....	6.90	7.00	7.20	7.55	7.70	8.30	.....	8.75	.....	.....
	Red	3.85	4.00	4.60	4.85	4.90	5.10	5.40	6.40	6.60	6.90	7.00	.....	7.50	.....	8.35	8.50	8.70	9.00	9.20	10.25	.....	10.55	.....	.....
McGRAW																									
	Imperial McGraw Pullman Congress Plain	qs15.30	qs15.00	qs19.95	19.70	qs20.45	22.90	26.55	qs29.85	30.75	32.05	32.65	37.05	34.95	.....	.....	43.70	45.85	46.60	47.95	52.45	58.45	55.55	.....	.....
	Imperial McGraw Pullman Congress Non-Skid	qs16.35	qs15.75	.....	20.20	qs21.65	23.90	28.40	qs31.35	32.10	33.45	34.35	38.90	36.40	.....	qc44.50	46.20	47.90	48.90	50.65	55.05	62.20	58.25	.....	.....
	Red Tubes	3.85	3.75	4.20	4.60	4.65	4.80	5.10	6.05	6.15	6.45	6.70	6.85	7.00	7.80	7.85	8.05	8.15	8.25	8.50	9.80	10.10	9.90	.....	.....
	Gray Tubes	3.40	3.35	3.85	3.90	4.25	4.35	5.00	5.20	5.35	5.50	5.70	6.25	6.00	7.15	6.95	7.10	7.20	7.35	7.70	8.80	9.35	9.00	.....	.....
McNAULL		.....	.....	.....	.....	.....	.....	.....	39.75	.....	46.95	.....	.....	.....	.....	60.20	.....	63.85	.....	68.65	77.70	.....	79.65	.....	.....
MANSFIELD	Plain	14.25	13.95	17.20	18.70	20.35	21.40	23.40	27.10	28.70	29.00	30.00	33.90	31.90	.....	.....	40.50	41.75	43.00	44.20	48.60	56.40	50.65	.....	.....
	Non-Skid	15.90	15.45	.....	21.15	22.35	23.75	26.25	30.15	31.10	32.15	33.35	37.65	35.50	.....	.....	45.00	46.25	47.50	48.75	55.00	.....	61.00	.....	.....
	Gray Tubes	2.70	2.75	3.20	3.40	3.50	3.70	4.30	4.35	4.50	4.70	4.85	5.30	5.15	.....	.....	5.85	5.95	6.15	6.35	7.25	7.75	8.25	.....	.....
	Red Tubes	3.35	3.35	.....	3.95	4.15	4.30	4.95	5.30	5.45	5.60	5.70	6.30	6.10	.....	.....	7.15	7.30	7.45	7.70	8.65	9.25	8.90	.....	.....
MARATHON	Runner Thread	.....	qs20.05	.....	qs24.40	qs25.45	28.45	c30.20	qs36.05	c37.25	c38.40	c39.60	c40.75	c41.95	qc51.85	.....	c55.15	c56.75	c58.40	c60.50	c67.90	c69.90	c71.95	cs85.00	cs85.27
	Angle Thread	qs15.45	qs20.55	.....	qs25.05	qs26.10	29.15	c31.00	qs37.00	c38.20	c39.40	c40.60	c41.80	c43.00	qc53.20	c54.90	c56.55	c58.20	c59.85	c61.55	c69.65	c71.70	c73.75	.....	cs89.45
	Black Oak	.....	qs14.50	.....	qs18.80	qs19.80	c22.00	c26.65	qs28.80	c29.40	c30.75	c31.50	c35.95	c36.90	qc39.95	.....	c42.40	c44.30	c45.10	c51.60	c50.60	c57.30	c53.55	c80.40	.....
	Heavy Red Tube	2.90	3.10	.....	4.05	4.15	4.30	4.60	5.60	5.80	6.00	6.20	6.40	6.60	7.35	7.60	7.80	8.05	8.30	8.55	10.30	10.60	10.90	13.05	13.40
	Gray Tube	2.60	2.80	.....	3.70	3.80	3.95	4.15	5.15	5.30	5.50	5.65	5.85	6.05	6.75	6.95	7.15	7.40	7.60	7.85	9.35	9.65	9.90	11.85	12.15

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
MARION	Plain	qs13.20	qs14.30		qs18.05																				
	Ribbed		qs15.25		qs19.50	c20.00	c22.00		qs28.60	30.00	c30.80	c32.55					45.00	46.00	46.90		54.00				
	Non-Skid	qs14.95	qs15.95		qs20.40		c23.90		qs30.80	c31.50	c33.50	c34.25	c35.90	c36.50			c46.00	c47.30	c47.85	c49.50	c55.00	c56.65	c57.00		
	Gray	2.90	3.00		3.60	3.70	3.75		4.75	5.00	5.20	5.30	5.45	5.55			6.40	6.60	6.75	7.10	8.10	8.20	8.25		
	Red		3.80		4.50	4.75	4.85		5.20	6.25	6.50	6.65	6.90	7.10			7.80	8.40	8.60	9.25	9.50	9.70	9.90		
MASON	Plain Tread	15.50	16.40		20.90	22.45	24.35		33.45	34.05	36.05	36.65		38.70		44.95	45.95	47.60	48.35	51.25	56.00	56.95	59.00		
	Ribbed Tread	16.35	17.55		22.40	24.15	26.35		34.75	35.30	37.50	38.05			46.95	48.95	49.55	52.50	53.20		61.70	63.75	65.95		
	Non-Skid	16.95	18.15		23.30	24.90	27.30	30.85	36.25	36.85	39.00	39.70	41.75	42.45	49.00	51.00	52.45	54.45	55.05	58.15	64.95	66.15	68.85		
	Gray Tubes	3.45	3.50		4.20	4.35	4.55	4.80	5.55	5.90	6.10	6.30	6.50	6.60	7.60	7.75	7.85	8.10	8.40	8.60	9.35	9.55	9.85		
	Red Tubes	4.00	4.15		5.00	5.15	5.35	5.60	6.65	6.80	7.15	7.45	7.65	7.80	8.55	8.65	8.85	9.00	9.30	9.50	10.45	10.75	10.90		
MICHELIN	Plain Tread	qs16.45	qs17.15		qs23.65																				
	Universal Tread		qs18.65		qs24.75	qs26.15	c27.95	c29.80	qs34.65	c38.65	c38.95	c40.30	cs42.05	c43.80	qc47.00	qc48.85	c50.00	c52.60	c53.70	cs55.60	c61.30	cs62.80	c63.50		
	Red Tubes	3.90	4.05		4.70	4.05	4.85	5.30	5.60	6.40	5.85	6.80	6.15	7.30	8.35	7.50	8.80	7.90	9.30	8.45	10.65	11.10	11.30	12.45	12.45
MOHAWK	Plain	qs18.70	qs19.65		24.00	qs26.55	28.05	c30.65	qs35.35	c36.50	37.55	38.90	c40.20	42.45		c45.70	47.85	49.85	52.60	c53.80	c59.65	s62.00	c63.45	cs78.95	
	Non-Skid	qs22.55	qs23.70		30.00	qs31.10	34.45	c37.55	qs41.60	43.10	44.20	45.90	c47.45	50.15	52.90	c54.05	56.45	58.90	61.85	c63.35	c70.35	s73.35	75.00	cs93.10	cs96.65
	Ribbed Tread		qs21.10		qs25.95		qc30.35		qs38.45	qc39.65	qc40.85	c42.05			48.10		c51.65	qc53.85	c56.95		c64.90		c68.45		
	Pure Gum and Red Tubes	3.40	3.55		4.55	4.70	4.90	5.20	5.75	5.85	6.10	6.25	6.35	6.55	7.35	7.65	7.85	8.00	8.25	8.60	9.35	9.65	9.95	11.40	11.60
	Combination Tube		3.80		3.80																				
	Keaton				qs31.55		qc36.35		qs43.85	qc45.40	qc46.60	qc48.35			qc55.55		c60.00	qc61.10	c64.45		c74.45		c78.05		
MONARCH	Gray Tubes	3.15	3.35		4.15	4.20	4.25		5.25	5.35	5.50	5.65		6.10		6.80	6.90	7.15	7.35	7.60	8.60	8.70	8.95		
	Red Tubes	3.45	3.70		4.65	4.70	4.75		5.85	5.95	6.10	6.30		6.75		7.50	7.75	7.90	8.10	8.45	9.60	9.75	9.85		
NABOB	Plain Tread	qs19.95	qs20.95		s25.45	qs28.20	29.90	32.50	q35.00	c36.30	c37.65	c38.95	c40.10	c41.35		c46.35	c47.95	c49.40	c50.75	c52.10	c58.95	c60.65	c62.15	c81.05	c93.10
	Safety Traction Non-Skid		qs25.00		s31.30	qs32.30	35.70	38.80	q43.15	c44.55	c45.90	c47.50	c49.05	c51.80		c53.70	c55.65	c59.60	c64.05	c65.40	c72.85	c75.65	c77.45	c96.35	c112.05
	Tubes	3.65	3.75		4.60	4.95	5.15	5.45	6.10	6.20	6.40	6.65	6.75	6.90		8.05	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25
NATIONAL	Plain	13.80	13.40	17.95	17.45	18.35	20.40	23.80	26.75	27.25	28.55	29.15	33.30	34.20		38.05	39.25	41.10	41.75	47.80	46.90	53.10	49.65		
	Non-Skid	14.45	14.10	18.80	18.25	19.30	21.40	24.95	28.00	28.60	29.85	30.65	35.00	35.90		39.95	41.30	43.10	43.90	50.20	49.25	55.70	52.15		
	Red Tubes	3.45	3.35	3.80	4.20	4.25	4.30	5.05	5.30	5.40	5.55	5.70	6.45	6.60		6.80	7.00	7.15	7.35	8.35	8.70	9.50	8.95		
NEEDHAM	Plain	qs13.20	qs14.30		18.15	19.25	21.20	c23.80	28.35	c29.00	c30.40	c30.95	c32.25	c32.75		c39.90	c41.25	c43.10	c43.65	c45.30	c49.05	c49.70	c51.60	s71.45	cs73.20
	Non-Skid				20.90	21.90	24.30	c27.25	32.85	c33.35	c34.85	c35.50	c36.95	c37.45		c46.55	c47.50	c49.45	c50.00	c51.90	c56.20	c56.95	c59.15	s81.85	cs83.90
	Tubes	2.80	2.90		3.30	3.40	3.45	3.60	4.55	4.70	4.85	4.95	5.05	5.15		6.10	6.20	6.30	6.40	6.60	7.55	7.70	7.85	8.45	8.55
NEWCASTLE	Plain		14.75		19.20	21.10	22.45	23.50	29.45	29.95	31.40	32.00	36.60	37.60			43.15	45.20	45.90	52.45	51.55	58.40	55.60		
	Non-Skid		16.30		21.25	23.90	24.50	26.60	30.80	31.50	32.80	33.70	38.50	39.50			45.40	47.40	48.25	55.20	54.10	61.25	57.35		
	Shenango Non-Skid				28.15		32.15				c41.30	42.75						c53.10	c57.65		c65.55		cs69.70		
	Pure Gum Gray Tubes		3.20		4.10	4.25	s4.40	4.70	5.20	5.30	5.50	5.65	5.75	5.90			7.10	7.25	7.50	7.75	8.50	8.70	9.00		
NORWALK	Plain		s20.65		s28.00						q42.00	c42.80						qc56.70	cs57.55				c70.25		
	Non-Skid		s21.75		s29.45	s31.10	c33.85		s41.10	c41.85	c44.00	c45.00		cs47.85	53.55	56.05	c56.95	c59.55	c60.40	cs62.90	c69.70	cs70.65	c73.80		
	Gray Tubes	3.30	3.35	3.95	4.15	4.25	4.40	5.20	5.40	5.55	5.70	5.85	6.25	6.30	7.15	7.15	7.20	7.35	7.55	7.85	8.90	9.05	9.20	10.55	10.75
	Red Tubes	3.65	3.70	4.35	4.60	4.65	4.80	5.75	5.95	6.15	6.30	6.45	6.90	6.95	7.90	7.90	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
PALMER	Tubes		7.20		7.90		8.15		9.10	9.25	9.40	9.65	9.80	10.10	10.80	11.10	11.40	11.75	12.25		13.60	13.80	14.15		
PARA-BELL	Plain	13.80	14.20	17.30	18.45	19.45	21.50	27.90	28.25	28.80	30.10	30.80	37.20	32.85			41.60	43.45	44.15	45.90	49.55	57.85	52.55		
	Non-Skid	14.50	14.95		19.35	20.35	22.45	29.25	29.65	30.20	31.62	32.40	39.00	34.50			43.65	45.65	46.35	48.25	52.05	60.75	55.20		
	Gray Tubes	2.95	3.00	3.40	3.75	3.80	3.85	4.55	4.75	4.85	5.00	5.15	5.75	5.50			6.25	6.45	6.65	6.85	7.80	8.60	8.10		
	Red Tubes	3.30	3.35	3.80	4.20	4.25	4.30	5.05	5.30	5.40	5.55	5.70	6.45	6.10			7.00	7.15	7.35	7.65	8.70	9.50	8.95		
PEARCE	Morton Plain	11.00	11.85		15.35	16.20	17.65	20.00	24.00	24.95	25.20	25.75	26.95	27.35	33.10	34.10	34.20	35.75	36.20	39.85	43.95	44.55	45.30		
	Non-Skid	12.00	12.85		16.95	18.00	19.65	22.40	27.10	27.90	28.50	29.50	30.20	31.10	36.00	38.00	39.00	40.15	41.40	42.00	47.20	48.50	50.00		
	Germantown Cord Plain		17.50		21.95	22.25	24.00	39.00	33.15	34.75	35.95	36.10	40.00	43.50	38.15	45.25	46.75	48.75	50.50	52.00	56.50		58.15		
	Non-Skid		18.25		23.75	25.00	27.30	44.50	36.35	37.10	38.95	39.70	42.35	49.00	45.00	50.20	51.90	54.25	55.00	57.30	63.80		64.75		
	Red Tubes	3.25	3.45		3.95	4.10	4.25	4.50	5.35	5.45	5.75	5.95	6.20	6.40	6.50	6.75	7.45	7.55	7.80	8.05	9.00	9.20	9.30		
PENNSYLVANIA	Bar O Circle	12.80	13.45		17.60	19.50	20.65	24.00	27.00	27.40	28.70	29.40	33.50	34.45		38.40	39.70	41.40	42.05	48.15	47.35	53.60	50.10	65.15	67.80
	Vacuum Cup	17.15	17.70	23.50	22.65	24.20	26.75	30.55	35.65	36.30	38.40	39.10	41.15	41.80	50.50	52.55	52.90	55.05	55.65	57.80	67.85	69.15	71.45	86.65	9.20
	Ebony Tread	15.45	16.00	21.20	20.40	21.80	24.10	27.50	32.10	32.65	34.55	35.20	37.00	37.60	45.45	47.30	47.65	49.55	50.10	52.05	61.10	62.20	64.30	78.00	91.25
	Ton-Tested Gray Tubes	2.80	2.90	3.15	3.40	3.55	3.70	4.05	4.95	5.05	5.25	5.45	5.55	5.75	6.50	6.65	6.70	6.80	6.95	7.25	8.15	8.25	8.40	8.80	9.00
PERFECTION	Plain	18.00	19.25		23.20	24.65	27.50	29.75	32.10	34.10	35.20	36.40	37.60	38.85	40.10	41.35	42.70	43.90	45.25	46.45	52.60	53.85	54.00	72.70	76.00
	Non-Skid	21.25	22.25		27.95	28.90	32.10	34.65	38.75	40.75	41.15	42.45	45.90	47.40		48.30	50.00	52.50	55.00	57.35	65.20	67.50	69.00	85.75	87.55
	Gray Tubes	3.20	3.30	3.50	4.20	4.35	4.50	4.80	5.35	5.45	5.65	5.80	5.90	6.05	6.85	7.10	7.30	7.45	7.70	7.95	8.75	8.95	9.25	10.55	10.75
	Red Tubes	3.40	3.55	3.70	4.50	4.60	4.85	5.30	5.75	5.85	6.10	6.25	6.35	6.50	7.45	7.60	7.80	7.95	8.20	8.45	9.30	9.50	9.80	11.10	11.35
PHARIS	Plain	14.40	15.25	19.25	19.70	20.50	22.60	25.20	30.35	30.85	32.20	32.80	34.10	34.65	49.95		44.00	45.70	46.30	47.90	52.00	52.65	54.65		
	Non-Skid		16.35		21.05	21.95	24.20	27.05	32.45	33.05	34.55	35.10	36.50	37.15	52.55	46.40	47.10	48.95	49.50	51.30	55.65	56.45	58.45	91.35	81.05
	Red Tubes	3.85	4.00	4.15	4.60	4.70	4.75	5.15	5.80	5.90	6.10	6.20	6.40	6.50	7.60	7.70	7.75	7.85	8.10	8.25	9.40	9.70	9.80	10.50	10.65
PORTAGE	Plain		qs16.60		qs21.55	qs22.75	c24.70	qc28.05	qs33.05	c33.65	c35.30	c36.15	qc37.80	c38.50	qc47.40	qc49.00	c48.00	c50.35	c51.05	c53.15	c57.40	s58.30	c60.90		
	Daisy Non-Skid	qs17.80	qs19.20		qs24.70	qs26.05	c28.50	qc32.30	qs37.90	c38.65	c40.65	c41.55	qc43.50	c44.35	qc54.75	qc56.25	c55.30	c57.75	c58.70	c61.15	c66.05	s67.10	c69.85		
	Gray or Red Tubes	3.50	3.80		4.60	4.75	4.90	5.25	6.20	6.50	6.70	6.90	7.10	7.25	8.10	8.25	8.40	8.60	8.90	9.10	9.95	10.25	10.35		
	Daisy or Ribbed Cord									qc59.10		qc62.35			qc66.60		c70.10	qc71.75	c73.55		c87.05		c91.35		
PORTER	Giant	qs15.00	qs16.45		qs21.50	qs22.65	24.35	c26.50	qs31.65	c32.35	c33.30	c34.35	c35.25	c36.30	qc44.00	c45.25	c46.25	47.70	c48.80	c50.00	c56.10	cs57.20	c59.25		
	Non-Skid	qs16.00	qs17.55		qs22.85	qs24.25	26.30	c27.95	qs34.95	c35.45	c36.60	c37.40	c39.45	c40.00	qc47.75	c49.00	c49.75	51.15	c52.55	c53.90	c59.95	cs61.60	c62.95		
	Gray Tubes	2.85	3.00		3.60	3.70	3.75	3.95	4.75	4.95	5.05	5.25	5.45	5.60	6.20	6.35	6.50	6.60	6.75	6.95	7.85	8.00	8.15		
	Red Tubes	3.15	3.40		3.95	4.10	4.20	4.40	5.30	5.45	5.65	5.85	5.95	6.15	7.00	7.15	7.25	7.35	7.50	7.75	8.75	8.90	9.00		

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

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TIRES AND TUBES—Continued

Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
QUAKER	Plain	s17.50	s18.50	s19.95	23.10	s24.20	27.55	29.65	s34.55	35.00	36.50	37.10	c38.75	39.35	qs47.05	.....	50.35	c52.25	52.95	c54.90	c59.60	60.20	c62.60	cs81.60	cs84.70
	T.T.T. Non-Skid	s18.80	s20.40	s22.15	25.65	s26.65	30.40	33.05	s38.25	38.95	40.50	41.30	c43.05	43.70	qs40.59	.....	53.00	c55.10	55.70	c57.70	c62.65	63.40	c65.85	cs85.70	cs89.20
	Gray Tubes	3.20	3.35	3.50	3.75	3.95	4.00	4.20	5.10	5.40	5.50	5.60	5.80	5.90	6.80	7.00	7.05	7.15	7.25	7.45	8.55	8.65	8.90	9.45	9.85
	Red Tubes	3.50	3.70	3.90	4.15	4.35	4.40	4.60	5.55	5.95	6.05	6.15	6.40	6.50	7.55	7.70	7.75	7.85	8.00	8.20	9.40	9.50	9.80	10.40	10.90
RACINE	Plain	qs15.60	qs16.70	qs19.45	qs20.55	qs21.75	23.95	28.90	q31.55	32.20	34.40	35.25	36.20	36.80	c43.55	44.50	45.95	46.60	48.15	50.75	56.65	58.30	59.95	s75.85	cs78.40
	Country Road	qs18.20	qs19.55	qs22.95	qs23.70	qs24.85	28.05	31.65	q36.30	38.25	40.50	41.10	41.45	41.85	c52.25	53.25	54.00	56.50	57.35	59.60	68.20	69.85	71.50	s89.55	cs91.95
	Ribbed Cord	.....	.....	.....	.....	.....	qc43.80	.....	qs53.70	c55.55	c57.10	c58.60	.....	.....	c62.65	qc64.20	c65.95	c67.50	c69.20	.....	c82.05	c83.95	c85.80	cs101.75	cs104.00
	Non-Skid Cord	.....	.....	.....	.....	.....	qc46.60	.....	qs57.25	c59.25	c60.85	c62.45	.....	.....	c66.70	qc68.40	c70.25	c71.95	c73.70	.....	c87.35	c89.55	c91.50	cs108.45	cs111.00
	Gray Tubes	3.15	3.30	3.60	3.85	3.95	4.15	4.30	5.15	5.40	5.50	5.70	5.95	6.05	6.80	7.00	7.10	7.20	7.45	7.60	8.65	8.75	8.90	9.30	9.50
	Red Tubes	3.75	4.05	4.35	4.45	4.75	4.85	5.05	6.05	6.20	6.55	6.70	6.90	7.15	7.90	8.20	8.25	8.45	8.60	8.85	10.05	10.25	10.35	10.90	11.00
RACINE HORSESHOE	Plain	qs17.00	qs17.50	qs18.50	21.00	qs22.00	24.00	25.00	qs35.00	31.50	32.00	32.50	35.00	36.00	qc43.00	qc44.00	45.00	46.00	47.00	50.00	53.00	54.00	55.00	cs78.00	cs80.00
	Non-Skid	qs18.00	qs18.50	qs20.50	23.00	qs23.50	27.00	29.00	qs40.00	36.50	37.00	38.00	40.00	42.00	qc47.00	qc48.50	51.00	53.00	54.00	57.50	64.50	66.00	67.50	cs85.00	cs90.00
	Cord Non-Skid	.....	.....	.....	.....	.....	.....	.....	.....	qc52.00	qc53.00	54.00	.....	.....	.....	.....	62.00	63.50	64.50	.....	75.50	.....	77.50	.....	.....
	Gray Tubes	3.15	3.20	3.75	3.80	4.00	4.20	4.60	5.20	5.35	5.55	5.65	5.75	5.90	6.90	7.00	7.15	7.35	7.65	7.90	8.75	8.95	9.00	9.60	10.20
	Red Tubes	3.95	3.95	.....	4.60	4.75	5.00	.....	6.25	6.40	6.65	6.80	.....	7.25	.....	.....	8.75	9.00	9.25	9.50	9.90	10.10	10.35	10.55	10.70
RECORD	Non-Skid	.....	qs15.75	.....	qs20.20	.....	qc23.90	.....	qs31.35	qc32.10	c33.45	c34.35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Red Tubes	3.85	3.75	4.20	4.60	4.65	4.80	5.10	6.05	6.15	6.45	6.70	6.85	7.00	7.80	7.85	8.05	8.15	8.25	8.50	9.80	10.10	9.90	.....	.....
	Gray Tubes	3.40	3.35	3.85	3.90	4.25	4.35	5.00	5.20	5.35	5.50	5.70	6.25	6.00	7.15	6.95	7.10	7.20	7.35	7.70	8.80	9.35	9.00	.....	.....
REPUBLIC	Plain	qs14.15	qs15.20	qs19.30	19.30	qs20.75	22.50	25.65	s30.05	30.70	32.25	32.95	34.45	35.00	41.05	c42.30	43.75	45.80	46.40	48.35	53.65	54.35	56.85	s79.05	s78.25
	Staggard Non-Skid	qs16.60	qs17.70	qs22.50	22.55	qs24.40	26.40	29.95	s35.20	35.90	37.70	38.50	40.30	40.90	48.10	c49.50	51.15	53.60	54.30	56.60	62.75	63.65	66.55	92.50	89.00
	Gray Tubes	2.90	2.95	3.20	3.45	3.60	3.75	4.15	5.05	5.20	5.35	5.55	5.70	5.85	6.55	6.75	6.80	6.95	7.05	7.35	8.25	8.40	8.50	8.95	9.10
	Blackline Red Tubes	3.35	3.55	3.85	4.15	4.35	4.40	4.65	5.60	5.70	5.95	6.20	6.40	6.50	7.20	7.30	7.60	7.70	7.90	8.15	9.15	9.30	9.50	9.90	10.20
REVERE	Plain	14.00	15.20	.....	19.75	20.75	22.90	28.30	30.20	30.85	32.25	33.05	37.80	38.35	.....	.....	44.45	46.50	47.20	53.65	53.05	58.75	56.20	.....	.....
	"R" Anti-Skid	14.70	15.95	.....	20.70	21.80	24.05	29.75	31.70	32.40	33.90	34.65	39.65	40.25	.....	.....	46.70	48.80	49.55	56.35	55.65	61.70	59.10	.....	.....
	Granite Tread	.....	18.05	.....	23.50	24.70	27.00	.....	36.90	37.55	39.50	40.40	.....	.....	.....	51.85	53.65	56.05	56.85	.....	63.65	.....	67.40	.....	.....
	Cord Casings	.....	.....	.....	.....	.....	43.40	.....	.....	55.15	56.55	58.15	.....	.....	61.95	63.75	65.55	67.10	68.65	.....	81.35	.....	85.15	.....	.....
	Gray Tubes	3.15	3.30	.....	4.15	4.25	4.40	4.75	5.35	5.50	5.65	5.75	6.00	6.20	6.75	7.05	7.10	7.25	7.55	7.80	8.80	8.95	9.15	.....	.....
	Red Tubes	4.00	4.10	.....	5.10	5.30	5.40	5.90	6.60	6.65	6.75	6.85	7.20	7.30	8.70	8.80	8.90	9.05	9.25	9.35	10.60	10.90	11.10	.....	.....
SAVAGE	Plain	qs14.15	qs14.35	.....	qs18.25	qs19.60	21.35	24.20	qs28.45	29.05	30.45	31.20	32.60	33.10	.....	s40.05	c41.35	c43.30	c43.95	c45.80	c50.75	c51.55	c53.80	.....	cs72.00
	Non-Skid	qs16.50	qs16.80	.....	qs21.35	qs23.00	24.95	28.35	qs33.30	34.00	35.70	36.45	38.10	38.70	qc45.45	s46.90	c48.40	c50.60	c51.35	c53.65	c59.40	c59.35	c62.95	.....	cs81.35
	Grafinite Tubes	3.75	3.90	.....	4.50	4.90	4.95	5.35	6.10	6.40	6.50	6.55	6.65	6.80	7.55	7.85	8.15	8.30	8.60	8.75	9.65	9.95	10.10	.....	12.05
SCHAVOIR	Gray Tubes	3.05	3.10	3.40	3.75	3.80	3.85	4.55	4.75	4.85	5.00	5.15	5.80	5.50	6.50	6.15	6.25	6.45	6.65	6.90	7.80	8.00	8.10	10.00	9.45
	Red Tubes	3.10	3.35	3.80	4.20	4.25	4.30	5.00	5.30	5.40	5.55	5.70	6.00	6.10	7.20	6.80	7.00	7.15	7.35	7.65	8.60	8.70	8.95	11.10	10.50
	Jumbo Red Tubes	.....	.....	.....	.....	.....	.....	.....	6.70	6.90	7.05	7.15	7.35	7.50	.....	8.40	8.80	9.05	9.20	9.40	10.90	11.10	11.25	.....	13.15
SEMPLE	Semco Red Tubes	3.60	3.75	3.90	4.50	4.60	4.75	5.05	6.05	6.20	6.40	6.60	6.75	6.95	7.95	8.20	8.35	8.50	8.70	8.90	9.85	10.05	10.35	11.00	11.30
SOUTHERN	Plain	qs12.80	qs13.20	.....	q17.00	qs18.10	20.10	c22.50	.....	qc27.25	c28.40	c29.00	c30.00	c30.45	.....	.....	.....	c41.10	c41.80	c43.10	.....	qc50.00	c51.70	.....	.....
	S Non-Skid	.....	qs14.70	.....	q19.50	.....	22.60	.....	28.70	qc30.10	c31.45	c32.20	.....	c33.65	cs42.60	.....	qc44.45	c46.10	c46.65	c48.25	qc54.85	.....	c57.65	.....	.....
	Red Tubes	3.45	3.70	.....	4.25	4.35	4.40	4.60	5.85	6.00	6.20	6.30	6.45	6.65	7.55	.....	7.75	7.90	8.00	8.20	9.15	9.30	9.45	.....	.....
SPEEDWAY	Non-Skid	.....	qs18.66	.....	qs23.33	.....	c30.00	c37.33	qs34.99	c36.40	c37.80	c39.20	.....	c42.00	.....	qc53.33	c53.33	c45.66	c56.00	qc59.33	qc68.60	qc70.00	qc70.00	.....	.....
	Red Tubes	4.33	4.46	.....	5.66	6.00	6.33	6.66	7.33	7.66	8.00	8.33	8.66	9.00	.....	9.69	9.85	10.08	10.40	10.77	12.00	12.66	13.33	14.66	15.33
STANDARD FOUR	Super Tread	15.50	16.15	.....	20.55	22.50	24.30	.....	32.00	32.60	34.50	35.05	.....	.....	.....	.....	48.00	49.70	50.55	52.60	58.50	.....	61.65	.....	.....
	Non-Skid	16.60	17.25	.....	22.00	.....	25.95	.....	34.70	35.30	37.30	37.95	.....	40.60	.....	51.00	51.45	53.45	54.10	56.15	65.95	.....	69.40	.....	.....
	Gray Tubes	2.85	2.90	.....	3.45	3.60	3.75	3.95	4.60	4.85	5.05	5.20	5.35	5.45	.....	6.40	6.50	6.70	6.95	7.10	7.70	7.90	8.15	.....	9.45
	Red Tubes	3.30	3.40	.....	4.15	4.25	4.40	4.65	5.50	5.65	5.90	6.15	6.30	6.45	.....	7.15	7.30	7.45	7.70	7.85	8.65	8.85	9.00	.....	10.80
STAR	Ribbed Tread	.....	qs22.00	.....	qs26.50	qs28.40	c30.45	.....	s37.50	qc39.20	qc40.50	c41.75	.....	.....	c51.90	qc53.65	c55.30	c57.20	c59.00	.....	c68.00	cs71.10	c72.25	cs90.00	.....
	All Star Non-Skid	.....	qs24.00	.....	qs20.00	.....	c32.10	.....	s39.70	qc41.00	qc42.25	c43.70	.....	c46.40	c53.25	qc55.00	c56.70	c58.50	c60.25	cs61.75	c70.00	cs72.50	c75.00	cs93.00	cs96.50
	Red Tubes	.....	3.65	.....	4.70	4.90	5.10	5.40	5.95	6.10	6.30	6.45	6.65	6.80	7.60	7.80	8.00	8.20	8.45	8.65	9.45	9.65	10.00	11.60	11.65
	Gray Tubes	.....	3.20	.....	3.85	4.90	4.05	.....	5.10	5.20	5.35	5.50	.....	.....	.....	.....	6.55	6.80	7.00	.....	.....	.....	.....	.....	.....
STERLING	Sterling Vacuum-Bar Non-Skid	qs17.46	q20.80	.....	qs26.67	28.32	cs29.81	.....	34.76	c43.64	e45.10	c46.55	.....	s49.46	s58.19	c59.65	c61.10	c62.56	c64.00	c65.46	c72.73	c74.20	c77.10	s81.46	s84.38
	Sterling Seamless Red Tubes	3.71	3.97	4.28	5.40	5.50	5.66	6.05	6.47	6.59	6.83	7.02	7.14	7.38	8.11	8.40	8.65	8.89	9.13	9.44	10.46	10.70	10.89	12.46	12.83
STRONGHOLD	Plain	.....	19.25	.....	24.95	25.90	29.15	.....	34.55	37.15	38.65	40.75	.....	42.10	.....	.....	47.30	50.25	52.90	53.70	.....	.....	67.90	.....	.....
	Stronghold Non-Skid	.....	21.10	.....	27.00	28.90	31.00	cs34.85	37.85	40.45	42.40	43.15	cs45.30	45.95	qc50.60	52.60	54.30	56.25	60.50	63.10	67.70	cs68.60	74.95	.....	.....
	Gray Tubes	.....	3.65	.....	4.20	4.40	4.60	4.85	5.75	6.10	6.30	6.50	6.70	6.85	7.95	8.00	8.10	8.35	8.70	8.85	9.75	9.95	10.20	.....	.....
	Red Tubes	.....	4.50	.....	5.15	5.60	5.75	6.05	7.05	7.35	7.60	7.95	8.15	8.35	8.65	9.25	9.40	9.60	9.95	10.15	11.10	11.40	11.60	.....	.....
SWINEHART	Plain	qs17.00	qs18.50	qs22.50	s22.50	qs23.95	25.75	29.20	qs32.80	33.55	35.20	35.95	c37.65	38.20	s44.75	46.25	47.75	c49.75	50.75	cs52.65	c59.00	s60.25	61.50	cs81.00	.....
	Ribbed	qs19.25	qs20.50	qs24.75	s24.75	qs26.70	28.75	32.55	qs36.65	37.40	39.25	40.10	c41.90	42.55	s50.25	51.90	53.45	c55.85	56.90	cs59.50	c65.75	s66.85	69.10	cs95.00	.....
	Non-Skid	.....	.....	qs26.00	s26.00	qs28.00	30.20	34.20	qs38.30	39.25	41.20	42.15	c44.05	44.70	s52.50	54.30	55.85	c58.35	59.35	cs61.95	c68.50	s69.60	72.50	cs100.00	.....
	Tubes	3.25	3.35	3.70	3.90	4.10	4.15	4.35	5.15	5.35	5.50	5.60	5.75	5.85	6.80	6.95	7.05	7.15	7.25	7.40	8.50	8.70	8.85	9.25	.....
TEN BROECK	Plain	qs13.65	qs14.40	qs18.30	q18.25	qs19.15	21.10	23.50	qs28.15	28.60	29.90	30.45	31.65	32.00	.....	.....	c41.80	43.40	43.90	45.60	s51.20	s51.85	s52.45	.....	cs70.40
	Non-Skid	qs15.30	qs16.35	.....	q21.45	qs22.45	24.50	27.70	qs33.55	34.15	35.90	36.70	38.40	39.05	.....	.....	c47.45	49.70	50.30	51.10	cs56.30	s57.20	59.55	.....	cs82.05
	Ribbed	.....	qs16.35	.....	q21.45	qs22.45	qc24.50	.....	qs33.55	34.15	35.90	36.70	.....	.....	.....	.....	47.45	49.70	.....	.....	s56.30	s57.20	.....	.....	s82.05
	Gray Tubes	3.65	3.80	4.00	4.35	4.45	4.55	4.75	5.95	6.15	6.30	6.45	6.60	6.75	7.85	.....	8.05	8.20	8.35	8.55	9.80	9.95	10.20	10.90	11.05
	Cord Plain	qs17.45	qs16.95	.....	qs22.10	qs23.25	25.80	30.10	qs33.85	.....	36.15	36.90	42.15	43.30	.....	.....	.....	52.00	52.80	56.50	.....	.....	s63.35	.....	.....
	Cord Ribbed Tread	.....	qs17.85	.....	q23.10	qs24.45	qc27.10	.....	qs35.45	36.20	37.75	38.85	.....	.....	.....	.....	52.25	54.55	.....	.....	s62.30	s70.45	.....	.....	s89.45
	Cord Bart Button	qs19.65	qs19.20	.....	qs24.45	qs25.80	28.45	32.95	qs37.10	37.85	39.40	40.50	45.95	47.10	.....	.....	.....	56.45	57.50	60.45	.....	.....	68.15	.....	.....

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Name	Trade Name and Tread	28x3	30x3	32x3	30x3½	31x3½	32x3½	34x3½	31x4	32x4	33x4	34x4	35x4	36x4	32x4½	33x4½	34x4½	35x4½	36x4½	37x4½	35x5	36x5	37x5	37x5½	38x5½
THERMOID	Non-Skid and Ribbed Tread	qs24.70	qs24.85	.....	qs31.25	qs33.40	c35.90	c39.00	qs43.35	c44.85	c46.15	c47.80	48.50	c51.60	c57.50	qc55.95	c57.20	c59.65	c63.25	c65.10	c72.55	sc75.00	c77.75	sc96.05	sc103.05
	Brown and DeLuxe Red Tubes	q3.80	3.85	.....	4.90	5.00	5.15	5.45	6.20	6.30	6.40	6.60	6.80	7.00	8.00	8.15	8.30	8.45	8.75	9.10	10.00	10.20	10.50	12.10	12.40
TOLIVER	6000 Mile Plain	17.95	18.60	23.60	22.95	24.95	qc26.90	qc29.95	34.90	qc35.50	qc37.40	qc37.95	qc39.40	qc39.85	.....	.....	51.35	qc52.90	qc53.95	qc55.80	qc61.85	qc62.90	qc65.35	.....	.....
	6000 Non-Skid	19.60	20.55	26.50	25.60	27.25	qc29.90	qc33.85	39.25	qc39.90	qc41.95	qc42.75	qc44.90	qc45.60	.....	.....	57.25	qc59.45	qc59.95	qc62.35	qc72.85	qc73.80	qc76.55	.....	.....
	4000-Mile Plain	.....	13.40	.....	17.45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Non-Skid	.....	14.10	.....	18.25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Gray Tubes	3.10	3.05	3.40	3.75	3.80	3.85	4.55	4.75	4.85	5.00	5.15	5.80	6.00	.....	.....	6.25	6.45	6.65	7.60	7.80	8.60	8.10	.....	.....
	Red Tubes	3.60	3.90	.....	4.30	4.45	4.65	5.00	5.50	5.85	6.10	6.25	6.40	6.60	7.45	.....	7.95	8.15	8.45	.....	9.35	9.70	10.20	11.40	11.80
	Puncture-proof Inner Tubes	4.40	4.35	4.55	5.35	5.45	5.50	6.50	6.80	6.95	7.15	7.35	8.30	8.60	.....	.....	8.95	9.20	9.50	10.90	11.15	12.30	11.60	.....	.....
TYRIAN	Plain	qs16.10	s18.00	cs19.80	s22.50	qs23.80	c25.95	c29.40	qs34.45	c35.30	c37.00	c37.85	c39.55	c40.20	qc45.80	qc48.05	c50.30	c52.55	c53.30	c55.50	c58.50	c59.45	c62.15	cs83.05	cs85.60
	Holdtite Non-Skid	qs17.55	s19.50	cs21.20	s24.90	qs26.15	c28.25	c31.70	qs37.50	c38.30	c40.10	c40.85	c42.65	c43.25	qc49.60	qc51.90	c54.15	c56.40	c57.10	c59.35	c62.45	c63.30	c66.00	cs89.90	cs92.55
	Extra Heavy Red	4.00	4.20	4.35	4.80	4.90	4.95	5.40	6.50	6.65	6.90	7.00	7.20	7.50	8.70	8.85	9.00	9.25	9.50	9.65	10.90	11.40	11.55	12.75	12.95
UNITED STATES	Plain	14.00	15.20	17.60	.....	20.75	22.90	28.30	30.20	30.85	32.25	33.05	37.80	38.35	41.80	43.05	44.45	46.50	47.20	53.65	53.05	58.75	56.20	80.35	88.10
	Usco Non-Skid	14.70	15.95	18.50	.....	21.80	24.05	29.75	31.70	32.40	33.90	34.65	39.65	40.25	43.90	45.20	46.70	48.80	49.55	56.35	55.65	61.70	59.10	.....	.....
	Chain Non-Skid	16.40	18.05	20.80	.....	24.70	27.00	33.30	36.90	37.55	39.50	40.40	46.20	46.75	50.50	51.85	53.65	56.05	56.85	64.75	63.65	70.70	67.40	95.60	.....
	Nobby Non-Skid	21.70	22.10	29.60	.....	30.25	32.75	45.00	40.00	40.80	42.85	43.65	52.00	56.00	53.60	55.20	57.10	59.65	60.50	75.70	70.20	78.95	74.30	102.70	105.00
	Royal Cord Non-Skid	.....	.....	.....	.....	.....	43.40	.....	.....	55.15	56.55	58.15	.....	.....	61.95	63.75	65.55	67.10	68.65	.....	81.35	90.90	85.15	.....	113.00
	Gray Tubes	3.15	3.30	3.45	.....	4.25	4.40	4.75	5.35	5.50	5.65	5.75	6.00	6.20	6.75	7.05	7.10	7.25	7.55	7.80	8.80	8.95	9.15	10.20	10.35
	Red Tubes	4.00	4.10	4.40	.....	5.30	5.40	5.90	6.60	6.65	6.75	6.85	7.20	7.30	8.70	8.80	8.90	9.05	9.25	9.35	10.60	10.90	11.10	12.20	12.35
VICTOR	Plain	18.80	19.85	.....	24.45	.....	28.45	.....	38.00	38.65	40.30	41.05	42.80	43.25	.....	.....	51.15	52.80	53.75	59.00	.....	.....	66.65	.....	.....
	Ribbed	.....	20.80	.....	25.80	.....	29.90	.....	29.90	41.70	42.35	43.10	.....	.....	.....	.....	53.80	56.05	56.55	.....	66.70	67.60	70.10	.....	.....
	Non-Skid	21.00	22.30	.....	27.65	30.95	31.75	.....	42.60	43.35	45.20	46.10	48.90	48.40	58.40	58.70	59.30	60.50	63.55	70.00	74.80	75.65	78.55	100.60	101.65
	Victor Gray Tubes	3.40	3.65	.....	4.25	4.55	4.70	.....	5.70	5.85	6.00	6.15	6.45	6.60	7.50	7.65	7.80	8.00	8.20	8.35	9.35	9.50	9.75	10.30	10.60
	Victor Red Tubes	3.75	3.95	.....	4.65	5.30	5.40	.....	6.35	6.55	6.70	6.95	7.10	7.25	8.45	8.55	8.70	8.95	9.15	9.30	10.35	10.55	10.80	11.65	11.85
	Springfield Pure Gum Tubes	3.50	3.60	.....	4.55	4.65	4.90	.....	5.80	5.90	6.10	6.30	.....	6.55	.....	7.65	7.90	8.05	7.35	8.60	9.45	9.65	10.05	11.45	11.65
	Springfield Red Tubes	3.65	3.75	.....	4.80	4.95	5.15	.....	6.10	6.20	6.40	6.65	.....	6.90	.....	8.05	8.30	8.45	8.80	9.05	9.95	10.15	10.55	12.05	12.25
VIKING	Plain	s19.90	s19.55	.....	23.45	s28.15	28.95	31.50	34.50	34.90	36.60	38.35	38.75	39.60	43.75	qc45.60	47.25	48.70	50.10	51.50	57.80	59.70	61.10	s79.50	s81.10
	Hold-On Tread	s22.35	s22.25	.....	25.15	s30.75	32.45	36.25	38.10	38.75	40.45	41.20	42.90	43.25	47.50	qc50.80	53.05	56.15	59.55	61.60	66.50	67.85	72.60	s90.65	s97.25
	Red Tubes	3.50	3.65	3.95	4.25	4.45	4.50	4.75	5.95	6.15	6.35	6.50	6.60	6.85	7.75	7.85	8.00	8.10	8.35	8.50	9.50	9.80	9.90	11.00	11.20
VITALIC	Non-Skid	.....	qs15.50	.....	qs20.10	.....	q23.55	.....	qs30.80	qc31.45	32.85	33.70	.....	.....	.....	.....	.....	47.40	48.30	50.35	qc54.20	.....	57.35	.....	.....
	Red and Gray Tubes	3.75	3.85	4.00	4.60	4.75	4.85	5.10	6.05	6.15	6.25	6.40	6.50	6.60	7.80	7.90	8.05	8.15	8.30	8.45	9.90	10.00	10.20	11.85	12.10
	Extra Heavy Gray Tubes	4.25	4.35	4.60	5.15	5.35	5.50	5.85	6.80	7.05	7.20	7.35	7.55	7.70	8.80	8.95	9.15	9.30	9.45	9.70	11.35	11.55	11.75	13.50	14.05
VULCAN	Gray Tubes	3.30	3.35	.....	4.15	4.25	4.40	5.20	5.40	5.55	5.70	5.85	6.25	6.30	.....	.....	7.20	7.35	7.55	7.85	8.90	9.05	9.20	10.55	10.75
	Indian Red Tubes	3.65	3.70	.....	4.60	4.65	4.80	5.75	5.95	6.15	6.30	6.45	6.90	6.95	.....	.....	7.95	8.10	8.35	8.65	9.80	10.10	10.15	11.60	11.85
WILSON	Wearwell Plain	q13.80	q13.40	.....	q17.45	.....	q20.40	.....	.....	q27.25	28.55	q29.15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Wearwell Non-Skid	q14.45	q14.10	.....	q18.25	q19.30	q21.40	.....	q28.00	q28.60	q29.85	q30.65	.....	.....	.....	.....	.....	43.10	.....	.....	.....	.....	.....	.....	.....
	Wearwell Gray Tubes	3.10	3.05	.....	3.75	3.80	3.85	.....	4.75	4.85	5.00	5.15	5.80	5.50	.....	.....	6.25	6.45	6.65	6.90	7.80	8.60	8.10	9.25	.....
	Wearwell Red Tubes	3.40	3.35	.....	4.20	4.25	4.30	.....	5.30	5.40	5.55	5.70	6.45	6.10	.....	.....	7.00	7.15	7.35	7.65	8.70	9.50	8.95	10.30	.....
	Wilson Non-Skid	.....	.....	.....	.....	.....	.....	.....	qc49.25	.....	qc53.90	.....	.....	.....	.....	.....	.....	qc65.45	.....	qc67.75	cs78.75	.....	c82.55	qc90.00	.....
	Wilson Gray Tubes	3.40	3.35	.....	4.20	4.25	4.30	.....	5.30	5.40	5.55	5.70	6.45	6.15	.....	.....	7.00	7.15	7.35	7.60	8.50	8.70	8.85	9.40	.....
	Wilson Red Tubes	3.70	3.65	.....	4.80	4.85	4.90	.....	6.00	6.05	6.10	6.20	7.09	6.79	.....	.....	7.70	7.85	8.05	8.35	9.35	9.55	9.75	10.40	.....
WOODWORTH	Plain	23.90	25.30	.....	32.60	33.25	36.30	39.90	46.85	47.90	49.90	51.00	.....	53.95	61.15	.....	65.00	66.20	68.75	70.90	81.50	82.40	85.80	.....	.....
	Non-Skid	25.75	27.90	.....	34.90	36.45	38.80	43.95	49.90	53.40	55.25	56.80	.....	59.80	64.15	.....	68.75	70.10	73.35	74.80	85.75	86.70	90.10	.....	.....
	Tubes	3.90	4.00	.....	4.40	4.55	4.65	4.95	6.35	6.60	6.70	6.80	6.90	6.90	7.10	.....	8.65	8.90	9.20	9.40	10.00	10.35	10.55	.....	.....
ZEE-ZEE	"Z" White Tread Non-Skid	.....	18.82	.....	21.67	23.39	24.12	.....	32.83	34.37	35.61	36.39	37.71	38.89	47.52	48.42	49.33	50.09	52.04	53.70	56.22	57.95	58.86	72.90	78.26
	Brazilian Tubes	3.81	4.11	4.35	4.71	4.82	4.93	5.05	6.16	6.28	6.57	6.80	6.89	7.06	8.10	8.29	8.41	8.45	8.59	8.95	10.67	10.76	11.23	12.44	13.04
	Climax Non-Skid	.....	10.50	.....	11.70	12.50	13.25	.....	14.25	15.25	16.45	17.40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Samson Tread Non-Skid	.....	14.10	.....	18.25	19.30	21.40	.....	28.00	28.60	29.85	30.65	.....	.....	38.90	40.10	41.30	43.10	43.90	44.60	49.25	52.15	.....	.....	.....

NOTE—The letter c means that a CLINCHER tire is NOT made in this size; q that a QUICK-DETACHABLE is not made in this size, and s that a STRAIGHT SIDE is not made in this size.

These Tables are for your constant consultation and should be of great value in the conduct of your business—

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Trucks — MOTOR WORLD GUIDE — Trucks

This table appears in the first issue every month. It is corrected every month and brought up to date.

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES: Kind	TIRES: Sizes in Ins. Front	TIRES: Sizes in Ins. Rear	MOTOR: Make Engine	MOTOR: No. of Crankshaft Bearings	MOTOR: Cylinders Bore and Stroke	MOTOR: S. A. E. Hp.	MOTOR: Cylinders Cast	MOTOR: Valves Placed	MOTOR: Spark Plug	MOTOR: Cooling—Water Circulation	IGNITION: Type	IGNITION: Make	IGNITION: Spark Advance	Electric System—Type and Make	GOVERNOR: Type	GOVERNOR: Drive	GOVERNOR: Make	SPEED: Motor in r.p.m.	SPEED: Truck in m.p.h.	FUEL SYS.: Carbureter Make	FUEL SYS.: Fuel Feed	FUEL SYS.: Tank Location	CLUTCH: Type	CLUTCH: Make	GEARSET: Speeds	GEARSET: Make	GEARSET: Type	GEARSET: Location	Total Gear Reduction in High	Rear Axle	Springs, Make	Universals, Make	Final Drive	Propulsion Taken By	Torque Taken By	BRAKES: Hand Brake	BRAKES: Foot Brake	Steering Gear
A & B 3T	3	$4500	144	s.	48x3½d	48x3½d	own...	3	4-5½x4½	42.8	2	l.	..	p. d.	Bosch..	h.	G-E....	....	.....	None..	1200	20	Schblr..	g.	s.	...	none...	2	own....	elect	amid..	2	28.0	own....	Perf...	Franck.	int-g..	rad-rd.	rad-rd.	ext-r-w.	ex-f-w..	Gemr
A & B 5T	5	4750	144	s.	48x3½d	48x5d	own...	3	4-5½x4½	42.8	2	l.	..	p. d.	Bosch..	h.	G-E....	....	.....	None..	1200	18	Schblr..	g.	s.	...	none...	2	own....	elect	amid..	2	28.0	own....	Perf...	Franck.	int-g..	rad-rd.	rad-rd.	ext-r-w.	ex-f-w..	Gemr
Acason B	1½	2400	150	s.	36x3½	36x5	Wauk.	3	4-3½x5	22.5	2	l.	..	p. s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1500	18	Stmbg..	v.	s.	dp.	B&Bek.	3	Covert.	selec	unt-m.	3	9.2	Timkn.	Dtrt...	Spicer..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross
Acason H	2	2750	150	s.	36x4	36x7	Wauk.	3	4-4½x5½	29.0	2	l.	..	p. s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1200	15	Stmbg..	v.	s.	dd.	Muncie	Muncie	selec	unt-m.	4	7.75	Timkn.	Dtrt...	Spicer..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross
Acason L	3½	3600	172	s.	36x5	36x5d	Wauk.	3	4-4½x6½	29.0	2	l.	..	p. s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1200	12	Stmbg..	v.	s.	dd.	Muncie	Muncie	selec	unt-m.	4	10½	Timkn.	Dtrt...	Spicer..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross
Acason M	5	4600	172 / 187	s.	36x6	40x6d	Wauk.	3	4-4½x6½	36.1	2	..	..	p. s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1000	10	Stmbg..	v.	s.	dp.	B&Bek.	Cotta..	selec	unt-m.	3	11⅔	Timkn.	Dtrt...	Spicer..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross
Acason Light Tractor	6	2850	114	s.	36x4	36x7	Wauk.	3	4-4½x5½	29.0	2	l.	..	p. s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1200	15	Stmbg..	v.	s.	dd.	Muncie	Muncie	selec	unt-m.	4	9½	Timkn.	Dtrt...	Spicer..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross
Acason Heavy Tractor	10	4200	130	s.	36x5	36x5d	Wauk.	3	4-4½x6½	36.1	2	l.	..	p. s.	Eismn..	h.	L*.....	cnt.	motor.	Wauk..	1000	10	Stmbg..	v.	s.	dp.	B&Bek.	Cotta..	selec	unt-m.	3	10½	Timkn.	Dtrt...	Spicer..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross
Acme B	1	1900	130	s.	34x3	34x4	Cont..	3	4-3½x5	22.5	4	l.	..	t. s.	Eismn..	h.	l, G&D...	cnt.	.....	Pierce..	1700	20	Rayfld..	v.	s.	dp.	B&Bek.	Cotta..	selec	unt-m.	3	7.75	Timkn.	Dtrt...	Blood..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross
Acme A	2	2600	148	s.	36x4	36x6	Cont..	3	4-4½x5½	27.2	4	l.	..	p. s.	Eismn..	h.	l, G&D...	cnt.	.....	Pierce..	1500	15	Rayfld..	v.	s.	dp.	B&Bek.	Cotta..	selec	unt-m.	3	8.50	Timkn.	Dtrt...	Blood..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross
Acme C	3½	3500	168	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l.	..	p. s.	Eismn..	h.	l*.....	cnt.	.....	Pierce..	1200	12	Rayfld..	v.	s.	dp.	B&Bek.	Cotta..	selec	amid.	3	12.0	Timkn.	Dtrt...	Blood..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Acme D	4	3900	168	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l.	..	p. s.	Eismn..	h.	.....	cnt.	.....	Pierce..	1200	12	Rayfld..	v.	s.	dp.	B&Bek.	Cotta..	selec	amid.	3	13.6	Timkn.	Dtrt...	Blood..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
American* 30	3½	3450	158	s.	36x5	36x5d	Cont..	..	4-4½x5½	32.4	2	..	..	p. s.	Eismn..	h.	l*.....	cnt.	motor.	Pierce.	1143	14	Stmbg..	g.	..	dp.	B&Bek.	Covert.	selec	amid.	4	8.75	Shldn.	Perf...	Evans..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Lvine
American† C	2	2850	121*	s.	34x4	34x34d	Wauk.	3	4-4½x5½	29.0	2	l.	..	p. d.	Bosch..	f..	Eismn...	cnt	motor	Wauk..	1060	14	Zenith..	g.	s.	c..	Wabash	own....	id-c.	amid.	3	7.6	Kestone	Sheldon	Ther...	worm.	sub-f.	sub-f.	int-r-w.	ext-sht.	Lvine
American† D	3	3250	121*	s.	36x5d	36x5d	Wauk.	3	4-4½x5½	29.0	2	l.	..	p. d.	Bosch..	f..	Eismn...	cnt	motor	Wauk..	970	12	Zenith..	g.	s.	c..	Wabash	own....	id-c.	amid.	3	8.6	Kestone	Sheldon	Ther...	worm.	sub-f.	sub-f.	int-r-w.	ext-sht.	Lvine
American† F	5	4250	144*	s.	36x6	36x6d	Wauk.	3	4-4½x6½	32.4	2	l.	..	p. d.	Bosch..	a.	Eismn...	cnt	motor	Wauk..	870	10	Zenith..	g.	s.	c..	Wabash	own....	id-c.	amid.	3	9.3	Kestone	Sheldon	Ther...	worm.	sub-f..	sub-f	int-r-w.	ext-sht.	Lvine
Armleder HW	2	2900	148	s.	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	l.	..	p. s.	Eismn..	h.	l*.....	cnt.	shaft.	Pierce.	1200	15	Schblr..	g.	s.	dp.	B&Bek.	Covert.	selec	unt-m.	3	8.5	Timkn.	Mthr...	Spicer..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Armleder KW	3½	3850	156	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l.	..	p. s.	Eismn..	h.	l*.....	cnt.	shaft.	Pierce.	1000	12	Schblr..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.75	Timkn.	Mthr...	Spicer..	worm.	rad-rd.	sprgs.	int-r-w.	ext-sht.	Gemr
Atlas 18	½	985	118	p.	32x4	Lycmg	2	4-3½x5	19.6	4	l.	..	t.	s.	Remy..	h	Remy....	....	.....	None..	1600	30	Zenith..	g.	s.	d..	B&Bek.	Covert.	selec	unt-m.	3	4.7	Hess...	Rolnd..	Arvac..	sp-bv.	sprgs..	sprgs.	ext-r-w.	int-r-w.	Lvine
Atterbury 7R	1½	2475	140½	s.	36x3½	36x5	Cont..	3	4-4½x5½	27.2	4	l.	..	p. s.	Eismn..	f..	.....	cnt	motor	Pierce.	1200	15	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	8.5	Timkn.	Sp-Prch	Spicer..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Gemr
Atterbury 7C	2	2875 / 2975	153½ / 171½	s.	36x3½	36x4d	Cont..	3	4-4½x5½	27.2	4	l.	..	p. s.	Eismn..	f..	.....	cnt	motor	Pierce.	1200	15	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	8.5	Timkn.	Sp-Prch	Spicer..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Gemr
Atterbury 7D	3½	3775 / 3875	167½ / 192	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	4	l.	..	p. d.	Eismn..	h.	.....	cnt	motor	Pierce.	1125	13	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	10.3	Timkn.	Sp-Prch	Spicer..	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Gemr
Autocar 21F	2	2050	97	s*	34x4*	34x5*	own...	2	2-4½x4½	18.1	..	l.	..	p. s.	Bosch*	f..	.....	.....	.....	.....	.....	.....	Stmbg..	..	s.	dp.	own....	.....	prog	amid.	3	7.1	own....	.....	.....	d-red..	sprgs..	sprgs.	int-r-w.	ext-r-w.	.....
Available 1	1	1775	132	s.	36x3½	36x5	Cont..	3	4-3½x5	22.5	4	l.	..	t. s.	Bosch..	f..	None....	none	.....	.....	.....	.....	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn.	Tuthill.	Spicer..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Available 2	2	2450	150	s.	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	l.	..	p. s.	Bosch..	f..	None....	none	.....	.....	.....	.....	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.7	Timkn.	Tuthill.	Spicer..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Available 3	3½	3450	150	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l.	..	p. s.	Bosch..	f..	None....	cnt.	motor.	Pierce.	1214	14	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	10.3	Timkn.	Tuthill.	Spicer..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross
Available 5	5	4500	168	s.	36x6	40x6d	Cont..	3	4-4½x5½	32.4	2	l.	..	p. s.	Bosch..	f..	None....	cnt.	motor.	Pierce.	1175	12	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	11.7	Timkn.	Tuthill.	Spicer..	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w	Ross
Avery B	2	2700	128	s.	36x4	36x3½d	.....	..	4-4½x5	36.1	1	l.	..	p. d.	Eismn..	a.	.....	cnt	motor	.....	1200	14½	Rayfld	....	....	dd.	.....	.....	selec	unt-js.	3	3.5	.....	.....	.....	d-chn	.....	rad-rd.	.....	.....	.....
Avery B	3	3200	128	s.	38x5	38x4d	.....	..	4-4½x5	36.1	1	l.	..	p. d.	Eismn..	a.	.....	cnt	motor	.....	1200	13	Rayfld	....	....	dp.	.....	.....	selec	unt-js.	3	3.5	.....	.....	.....	d-chn	.....	rad-rd.	.....	.....	.....
Avery A	3	2500	140	s.	38x5	38x4d	.....	..	4-4½x5	36.1	1	l.	..	p. d.	Eismn..	a.	.....	cnt	motor	.....	1200	12	Rayfld	....	....	dd.	.....	.....	selec	unt-js.	3	3.5	.....	.....	.....	d-chn	.....	rad-rd.	.....	.....	.....
Barber Tractor	6	2500	84	s.	34x3½	34x7	Buda..	..	4-4½x5½	29.0	4	l.	..	p. s.	Bosch..	h.	.....	.....	.....	.....	.....	.....	Stmbg..	..	s.	d..	Fuller..	Fuller..	selec	.....	.....	.....	own..	.....	.....	.....	worm.	sprgs..	sprgs.	int-r-w.	ext-r-w.	Ross
Beck A	1	1240	124	s.	34x3	34x4	Cont..	..	4-3½x5	19.6	2	l.	..	p. s.	Bosch..	f..	l Vesta...	cnt	motor.	Pierce.	2000	18	Stmbg..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	6.0	Clark..	Hig....	Blood..	int-g..	sprgs..	sprgs.	ext-r-w.	int-r-w	Lvine
Beck B	1½	1560	144	s.	34x3½	34x5	Cont..	..	4-3½x5	22.5	4	l.	..	p. s.	Bosch..	f..	l, Vesta...	cnt	motor.	Pierce.	2000	16	Stmbg..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	6.0	Clark..	Hig....	Blood..	int-g..	sprgs..	sprgs.	ext-r-w.	int-r-w	Lvine
Beck C	2	1950	144	s.	36x3½	36x6	Cont..	..	4-4½x5½	28.9	2	l.	..	p. s.	Bosch..	f..	l, Vesta...	cnt	motor.	Pierce.	1500	13	Stmbg..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	9.0	Clark..	Hig....	Blood..	int-g..	sprgs..	sprgs.	ext-r-w.	int-r-w	Lvine
Beck D	2½	2250	144	..	36x4	36x7	Cont..	..	4-4½x5½	27.2	..	..	..	..	Bosch.	f..	l, Vesta...	cnt	motor.	Pierce.	....	11	Stmbg..	g.	s.	dd.	Fuller.	Fuller.	selec	unt-m.	..	....	Clark..	Hig....	Blood.	int-g.	sprgs.	sprgs.	ext-r-w.	int-r-w.	Lvine
Beech Creek 3A	3	3850	132	s.	36x6	36x6	Wauk.	3	4-4½x5½	29.0	2	l.	..	p. s.	Eismn..	h.	.....	cnt	motor.	Wauk..	1000	12	King....	v.	s.	dp.	B-Bek..	own....	selec	amid.	6	8.0	own....	.....	.....	bevl-4.	rad-rd.	sprgs.	ext-r-w.	ext-sht	own.
Bessemer G	1	1350	124	s.	34x3	34x4	Cont..	3	4-3½x5	19.6	4	l.	..	t. s.	Dixie...	h.	.....	....	.....	none...	1350	...	Zenith..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.0	Torbn..	Perf...	Blood..	int-g..	sprgs..	sprgs..	int-r-w	ext-r-w	Ross
Bessemer J	2	*2200	158*	s.	36x4	36x4d	Cont..	3	4-4½x5½	27.2	4	l.	..	p. s.	Dixie...	h.	.....	cnt.	motor.	Pierce.	1250	15	Rayfld.	g.	s.	c..	Hart...	B-Lipe.	selec	amid.	4	8.0	Torbn..	Perf...	Spicer..	int-g..	sprgs..	sprgs.	int-r-w	ext-r-w	Ross
Bessemer K	3½	3450	150	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l.	..	p. s.	Dixie...	h.	.....	cnt.	motor.	Pierce.	1250	12	Rayfld.	g.	s.	c..	Hart...	B-Lipe.	selec	amid.	4	10.3	Torbn..	Perf...	Spicer..	int-g..	rad-rd.	sprgs.	int-r-w	int-r-w.	Ross
Bethlehem 1½	1½	1295	126	s.	34x3	34x4	G.B.S.	3	4-3½x4½	22.5	4	l.	..	t. s.	Bring..	h.	.....	cnt	d-shft.	Pierce.	1300	18	Schblr..	g.	s.	d..	Dtroit..	Dtroit..	selec	unt-m.	3	7.7	Russl..	Shel...	Univ...	int-g..	sprgs..	sprgs.	int-r-w	ext-r-w.	Lvine
Bethlehem 2½	2½	1915	144	s.	34x4	34x6	NoAm	3	4-4 x4½	25.6	2	l.	..	t. s.	Bring..	h.	.....	cnt	d-shft.	Pierce.	1100	15	Schblr..	g.	s.	d..	Dtroit..	Dtroit..	selec	unt-m.	3	8.4	Russl..	Shel...	Univ...	int-g..	sprgs..	sprgs.	int-r-w	ext-r-w.	Lvine
Bethlehem Tractor 5	5	2705	120	s.	34x4	34x7	NoAm	3	4-4 x4½	25.6	2	l.	..	t. s.	Bring..	h.	.....	cnt	d-shft.	Pierce.	1100	15	Schblr..	g.	s.	d..	Dtroit..	Dtroit..	selec	unt-m.	3	9.4	Russl..	Shel...	Univ...	int-g..	sprgs..	sprgs.	int-r-w	ext-r-w.	Lvine
Bourne Magnetic VM	2	3500	143	s.	36x4	36x8	Hercl.	5	4-4 x5½	25.6	1	l.	..	p. s.	Eismn..	f..	s, l Ents..	cnt.	motor.	Simplx.	1280	15	Zenith..	g.	s.	....	Ents...	Ents...	....	unt-m.	..	8.50	Timkn.	Mthr...	Blood..	worm.	rad-rd.	sprgs.	int-r-w	int-r-w.	Ross
Bourne Magnetic XM	3½	4200	160	s.	36x5	36x10	Hercl.	5	4-4½x5½	29.0	1	l.	..	p. s.	Eismn..	f..	s, l Ents..	cnt.	motor.	Simplx.	1100	12	Zenith..	g.	s.	....	Ents...	Ents...	....	unt-m.	..	10.3	Timkn.	Mthr...	Blood..	worm.	rad-rd.	sprgs.	int-r-w	int-r-w.	Ross
Brinton H	1	1250	125	p.	33x4½	33x4½	Wis...	2	4-3½x5	16.9	4	l.	..	p. s.	Bosch..	f..	l.....	.....	.....	None..	.....	.....	.....	h.	s.	dd.	.....	.....	selec	unt-m.	3	6.2	.....	.....	.....	worm.	.....	sprgs.	int-f-w	int-r-w.	.....
Brinton F	2½	2650	140	s.	36x4*	36x6*	Cont..	3	4-4½x5½	27.2	4	l.	..	p. s.	Bosch..	f..	l.....	cnt.	motor.	Pierce.	.....	.....	.....	g.	s.	dd.	.....	.....	selec	unt-m.	3	7.75	.....	.....	own....	worm.	sprgs.	sprgs.	ext-r-w.	int-r-w.	.....
Briscoe 4-24	½	825	104	p.	31x4	31x4	own...	2	4-3½x5½	16.3	4	l.	..	t. s.	Conn...	h	s, lA-Lite	.....	.....	.....	.....	.....	DBuick	g.	d.	c..	own....	own....	selec	unt-x..	3	4.2	own....	.....	own....	bevel..	t-arm	t-arm	int-r-w	ext-r-w.	own...
Briscoe T-24	1	1000	132	ps	31x4	34x3½	own...	2	4-3½x5½	16.3	4	l.	..	t. s.	Conn...	h.	s, l A-Lite.	.....	.....	.....	.....	.....	DBuick	g.	d.	c..	own....	own....	selec	unt-j-s	3	9.0	own....	.....	own....	chain..	rad-rd.	tor-a.	int-r-w	ext-j-s.	own...
Brockway J-2	1½	2450	140	s.	36x3½	36x5	Cont..	3	4-3½x5	22.5	4	l.	..	t. s.	Eismn..	f..	.....	suc.	motor.	Mnrch.	1200	15	Schblr..	g.	s.	c..	Hart...	B-Lipe.	selec	amid.	3	8.6	Sheldon	Merrill.	Spicer..	worm.	sprgs..	sprgs.	int-r-w	int-r-w.	Gemr
Brockway K-3	2	2850	148	s.	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	l.	..	p. s.	Eismn..	f..	.....	suc.	motor.	Mnrch.	1200	15	Schblr..	g.	s.	c..	Hart...	B-Lipe.	selec	amid.	3	8.5	Timkn.	Merrill.	Spicer..	worm.	rad-rd.	sprgs.	int-r-w	int-r-w.	Gemr
Brockway R	3½	3750	164	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l.	..	p. s.	Eismn..	h.	l.....	suc.	motor.	Mnrch.	1100	12	Schblr..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	3	10.5	Timkn.	Merrill.	Spicer..	worm.	rad-rd.	sprgs.	int-r-w	int-r-w.	Gemr
Buick ½	½	790	106	..	31x4	31x4	own...	..	4-3½x4½	18.2	4	l.	..	p. s.	Delco..	h.	s, l Delco.	.....	.....	.....	.....	.....	Marvel.	v.	..	dd.	own....	own....	selec	unt-m.	..	4.08	Timkn.	.....	.....	bevel.	.....	.....	int-r-w	ext-r-w.	.....
Chase A	1	1725	138	s.	36x3½	36x5	Wauk.	3	4-3½x5½	19.6	4	..	..	p. s.	Bosch..	f..	.....	cnt	motor.	Mnrch.	1200	18	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.2	Sheldon	Perf...	.....	worm.	sprgs..	sprgs.	int-r-w	int-r-w.	Lvine
Chase C	1½	2025	149	s.	36x3½	36x6	Wauk.	3	4-3½x5½	19.6	4	..	..	p. s.	Bosch..	f..	.....	suc.	motor.	Mnrch.	1000	16	Stmbg..	g.	..	dp.	B&Bek.	Cotta..	selec	unt-m.	3	8.6	Sheldon	Perf...	.....	worm.	sprgs..	sprgs.	int-r-w	ext-r-w.	Lvine
Chase B	2½	2475	160	s.	36x4	36x4d	Buda..	3	4-4½x5½	27.2	4	..	..	p. s.	Bosch..	f..	.....	suc.	motor.	Mnrch.	1000	14	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.66	Sheldon	Perf...	.....	worm.	sprgs..	sprgs.	int-r-w	ext-r-w.	Lvine
Chase X	3	2800	160	s.	36x4	36x5d	Buda..	3	4-4½x5½	27.2	4	..	..	p. s.	Bosch..	f..	.....	suc.	motor.	Mnrch.	1000	12	Stmbg..	g.	..	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	9.25	Slsby..	Perf...	.....	worm.	sprgs..	sprgs.	int-r-w	int-r-w.	Lvine
Chase O	3½	3600	175	s.	36x5	36x5d	Cont*.	3	4-4½x5½	32.4	2	l.	..	p. s.	Bosch..	h.	s, lDynto,,	suc.	motor.	Mnrch.	1000	12	Stmbg..	g.	s.	d..	B-Lipe.	B-Lipe.	selec	unt-m.	4	8.75	Sheldon	Perf...	.....	worm.	sprgs..	t-arm	ext-r-w.	ext-r-w.	Lvine
Chevrolet 1	1	1125	125	ps	31x4	32x4	.....	3	4-3½x5½	21.7	4	..	..	s.	Remy..	..	s, lA-Lite.	suc.	.....	Mnrch	.....	25	Zenith..	g.	s.	c.	.....	.....	selec	unt-m.	3	7.0	.....	.....	.....	worm.	sprgs.	sprgs.	.....	.....	.....

*Detroit †Newark, O.

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TRUCKS—Continued

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES Kind	TIRES Sizes in ins. Front	TIRES Sizes in ins. Rear	MOTOR Make Engine	MOTOR No. of Crankshaft Bearings	MOTOR Cylinders Bore and Stroke	MOTOR S. A. E. Hp.	MOTOR Cylinders Cast	MOTOR Valves Placed	MOTOR Spark Plug	MOTOR Cooling—Water Circulation	IGNITION Type	IGNITION Make	IGNITION Spark Advance	Electric System—Type and Make	GOVERNOR Type	GOVERNOR Drive	GOVERNOR Make	SPEED Motor in r.p.m.	SPEED Truck in m.p.h.	FUEL STS. Carburetor Make	FUEL STS. Fuel Feed	FUEL STS. Tank Location	TRANSMISSION CLUTCH Type	TRANSMISSION CLUTCH Make	TRANSMISSION GEARSET Make	TRANSMISSION GEARSET Type	TRANSMISSION GEARSET Location	TRANSMISSION GEARSET Speeds	TRANSMISSION Total Gear Reduction in High	TRANSMISSION Rear Axle	TRANSMISSION Springs, Make	TRANSMISSION Universals, Make	TRANSMISSION Final Drive	TRANSMISSION Propulsion Taken By	TRANSMISSION Torque Taken By	BRAKES Hand Brake	BRAKES Foot Brake	Steering Gear
Garford.....75C	1	2100	128	ps	34x4½d	36x4	Buda..	3	4-3¾x5½	22.5	4	l..		p.	s.	Dixie...	h.	s,l West..	suc.	motor.	Mnrch.	1300	18	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.8	.....	Perf..	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Garford.....66B	1½	2500	144	s.	36x3½	36x5	Buda..	3	4-3¾x5½	22.5	4	l..		p.	s.	Dixie...	h.	s,l West..	cnt.	motor.	Duplex.	1270	16	Rayfld.	g.	s.	dd.	B-Lipe.	own....	selec	amid.	4	8.5	.....	Perf..	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Garford.....70B	2	3000	144	s.	36x4	36x7	Buda..	3	4-4¼x5½	29.0	4	l..		p.	s.	Dixie...	h.	s,l West..	cnt.	motor.	Duplex.	1190	15	Rayfld.	g.	s.	dd.	B-Lipe.	own....	selec	amid.	4	8.5	.....	Perf..	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Garford.....77-B	3½	3900	128*	s.	36x5	40x5d	Wis...	4	4-4¼x6	29.0	4	l..		p.	d.	Eismn..	h.	s,l West..	cnt.	motor.	own....	1050	12	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	10.3	.....	Perf..	Spicer..	worm.	rad-rd.	sprgs.	int-r-w.	ext-r-w.	Ross...
Garford.....68	5	4700	128*	s.	36x6	40x6d	Wis...	3	4-4½x5½	36.1	2	t.		p.	d.	Eismn..	h.	West.....	cnt.	motor.	own....	1050	11	Rayfld.	g.	s.	dd.	B-Lipe.	own....	selec	unt-j.	4	11.4	.....	Perf..	Spicer..	d-chn.	rad-rd.	.....	int-r-w	ext-sht.	Ross...
Garford.....69	6	4900	128*	s.	36x6	40x7d	Wis...	3	4-5Wx5½	41.6	2	t.		p.	d.	Eismn..	h.	West.....	cnt.	motor.	own....	1050	10	Rayfld.	g.	s.	dd.	B-Lipe.	own....	selec	unt-j.	4	12.3	.....	Perf..	Spicer..	d-chn.	rad-rd.	.....	int-r-w	int-sht.	Ross...
Garford Tractor.....	4½	3100	116	s.	36x4	36x7	Buda..	3	4-4¼x5½	29.0	4	l..		p.	s.	Dixie...	h.	West.....	cnt.	.....	Duplex.	1190	..	Rayfld.	g.	s.	dd.	B-Lipe.	own....	selec	amid.	4	9.25	Timkn.	Perf..	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Garford Tractor.....	7	4000	105	s.	36x5	40x5d	Wis...	3	4-4¼x5½	36.1	2	t.		p.	d.	Eismn..	h.	West.....	cnt.	.....	own....	1050	..	Rayfld.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	11.4	Timkn.	Perf..	Spicer..	worm.	rad-rd.	sprgs.	int-r-w	int-r-w.	Ross...
Garford Tractor.....	10	4800	102	s.	36x6	40x6d	Wis...	3	4-5Wx5½	41.6	2	t.		p.	d.	Eismn..	h.	West.....	cnt.	.....	own....	1050	..	Rayfld.	g.	s.	dd.	B-Lipe.	own....	selec	unt-j.	4	12.3	own...	Perf..	Spicer..	d-chn.	rad-rd.	sprgs.	int-r-w	ext-sht.	Ross...
Gary.....F	1	.....	130	s.	36x3½	36x4	Cont..	3	4-3¾x5	22.5	4	l..			t.	s.	Eismn..	h.	Vesta*...	cnt.	motor.	Pierce..	1275	15	Stmbg..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.8	Sheldon	Tuthill.	Blood..	worm	sprgs..	sprgs..	int-r-w	int-r-w.	Ross†
Gary.....G	1½	.....	144	s.	36x3½	36x5	Buda..	3	4-4½x5½	28.9	4	l..		p.	s.	Eismn..	h.	Vesta....	cnt.	motor.	Simplex	1275	15	Stmbg..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.75	Sheldon	Tuthill.	Blood..	worm	sprgs..	sprgs..	int-r-w	int-r-w.	Ross†
Gary.....H	2	.....	156	s.	36x4	36x6	Buda..	3	4-4½x5½	28.9	4	l..		p.	s.	Eismn.	h.	Vesta....	cnt.	motor.	Simplex	1275	15	Stmbg..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	8.75	Sheldon	Tuthill.	Hart..	worm	sprgs..	sprgs..	int-r-w	int-r-w.	Ross†
Gary.....HU	2½	.....	162	s.	36x4	36x7	Buda..	3	4-4½x5½	28.9	4	l..		p.	s.	Eismn.	h.	Vesta....	cnt.	motor.	Simplex	1275	15	Stmbg..	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	8.75	Sheldon	Tuthill.	Hart..	worm	sprgs..	sprgs..	int-r-w	int-r-w.	Ross†
Gary.....K	3½	.....	162	s.	36x5	36x5d	Buda..	3	4-4½x6	32.4	4	l..		p.	s.	Eismn..	a.	Vesta....	cnt.	duplex	Duplex.	1200	12	Stmbg..	g.	s.	dd.	Warner	Warner	selec	amid.	4	8.75	Sheldon	Tuthill.	Blood..	worm	sprgs..	sprgs..	int-r-w	int-r-w.	Ross†
G. A. Schacht.....	2	3150	144	s.	36x3½	36x6	Buda..	3	4-4¼x5½	29.0	4	l..		p.	s.	Bosch..	h.	.....	cnt.	motor.	own....	900	16	Schblr..	h.	s.	c.	Hart....	own...	selec	amid.	3	7.75	own...	Natl..	Hart..	worm	rad-rd.	t-arm	int-r-w	etx-r-w.	own...
G. A. Schacht.....	2½	3500	156*	s.	36x4	36x4d	Buda..	3	4-4¼x5½	29.0	4	l..		p.	s.	Bosch..	h.	.....	cnt.	motor.	own....	900	14	Schblr..	g.	s.	c.	Hart....	own...	selec	amid.	3	8.5	own...	Natl..	Hart..	worm	rad-rd.	t-arm	int-r-w	ext-r-w.	own...
G. A. Schacht.....	3½	3950	168*	s.	36x5	36x5d	Buda..	3	4-4¼x5½	29.0	4	l..		p.	s.	Bosch..	h.	.....	cnt.	motor.	own....	900	12	Schblr..	g.	s.	c.	Hart....	own...	selec	amid.	3	10.3	own...	Natl..	Hart..	worm	rad-rd.	t-arm	int-r-w	ext-r-w.	own...
G. A. Schacht.....	5	4950	168	..	36x5	40x6d	Buda..	..	4-4¼x5½	29.0	4	l..		..	p.	..	Bosch..	h.	.....	cnt.	motor.	Duplex.	900	10	Schblr..	g.	s.	c.	Hart....	own...	selec	amid.	..	14.0	own...	Natl..	Hart..	worm	rad-rd.	t-arm	int-r-w	ext-sht	own...
Gem.....	½	675	....	p.	31x4	31x4	GB&S	3	4-3¾x4½	22.5	4	l..		..	t.	s.	Conn...	h.	s,lDynto.	.....	.....	.....	.....	..	Carter..	..	s.	dd.	GB&S.	G-Lees	selec	unt-m.	3	4–1	W-W...	.....	.....	bevel.	sprgs..	sprgs..	int-r-w	ext-r-w.	Fostr..
Geneva.....1	¾	.....	96	s.	34x2	36x2½	Beavr.	..	2-5½x4½	22.1	1	l..		..	..	s.	Simms.	f..	None.....	.....	.....	None...	1200	18	Schblr.	g.	s.	dp.	Warner	.....	plan	unt-j.	2	4.0	Sheldon	Sheldon	Spicer..	d-chn	rad-rd.	rad-rd.	int-r-w	int-r-w.	.....
Globe.....A	1	1490	132	s.	34x3½	34x4	Cont..	3	4-3½x5	19.6	4	l..		p.	s.	Eismn..	f..	None....	cnt.	motor.	Pierce..	1385	20	Master.	v.	s.	dd.	B&Bek.	Covert	selec	unt-m.	3	7.0	Clark..	Sheldon	Univ...	int-g.	sprgs..	sprgs.	int-r-w	ext-r-w.	Lvine.
Globe.....B	1½	1850	144	s.	36x3½	36x5	Cont..	3	4-3¾x5½	22.5	4	l..		p.	s.	Eismn..	f..	None....	cnt.	motor.	Pierce..	1300	18	Master.	v.	s.	dd.	B&Bek.	Covert	selec	unt-m.	3	7.5	Russl..	Sheldon	Univ...	int-g.	sprgs..	sprgs.	int-r-w	ext-r-w.	Lvine.
Globe.....C	2	2190	154	s.	36x4	36x6	Cont..	3	4-4½x5½	27.2	4	l..		..	s.	Eismn..	f..	None....	cnt.	motor.	Pierce..	1250	16	Master.	v.	s.	dd.	B&Bek.	Covert	selec	unt-m.	3	8.0	Clark..	Sheldon	Univ...	int-g.	sprgs..	sprgs.	int-r-w	ext-r-w.	Lvine.
G.M.C.....16	¾	1495	132	p.	35x5	35x5	Cont..	3	4-3½x5	22.5	4	l..		p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1150	20	Marvel.	g.	s.	dd.	own....	own...	selec	unt-m.	3	6.0	W Mott	Dtrt...	Univ...	bevel.	rad-rd.	sprgs.	int-r-w	ext-r-w.	Jacox.
G.M.C.....21	1	1950	136	s.	34x3½	34x5	Cont..	3	4-3¾x5	22.5	4	l..		p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1380	18	Marvel.	g.	s.	dd.	own....	own...	selec	unt-m.	3	7.7	Timkn	Dtrt...	Univ...	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Lvine.
G.M.C.....31	1½	2350	144*	s.	36x3½	36x5	Cont..	3	4-3¾x5	22.5	4	l..		p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1300	15	Marvel.	g.	s.	dd.	own....	own...	selec	unt-m.	4	9.2	TDB..	Dtrt...	Univ...	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Lvine.
G.M.C.....41	2	2800	158*	s.	36x4	36x4d	Cont..	3	4-4½x5½	27.2	4	l..		p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1200	14	Marvel.	g.	s.	dd.	own....	own...	selec	unt-m.	4	9.2	TDB..	Dtrt...	Univ...	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Lvine.
G.M.C.....71	3½	3900	163*	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	l..		p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1210	12	Marvel.	g.	s.	dd.	own....	own...	selec	amid.	4	12.0	TDB..	Dtrt...	Univ...	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Lvine.
G.M.C.....101	5	4500	163*	s.	36x6	40x6d	Cont..	3	4-4½x5½	32.4	2	l..		p.	s.	Eismn..	h.	.....	suc.	motor.	Mnrch.	1210	10	Marvel.	g.	s.	dd.	own....	own...	selec	amid.	4	13.6	TDB..	Dtrt...	Univ...	worm	rad-rd.	sprgs.	int-r-w	int-r-w.	Lvine.
Gramm-Bernstein.....	1½	2450	130*	s.	34x3½	36x5	Wauk.	3	4-3½x5½	22.5	4	l..		p.	s.	Eismn.	h.	s,l*West.	cnt.	motor.	Wauk..	1200	17	Zenith..	g.	s.	dd.	own....	own...	id-c.	amid.	3	7.75	Sheldon	Sheldon	.....	worm	sprgs..	sprgs.	int-r-w	ext-r-w.	Ross...
Gramm-Bernstein.....	2	2750	146	s.	34x4	34x3½d	Wauk.	3	4-3½x5½	22.5	4	l..		p.	s.	Eismn.	h.	s,l*West.	cnt.	motor.	Wauk..	1200	16	Zenith..	g.	s.	dd.	own....	own...	id-c.	amid.	3	8.6	Sheldon	Sheldon	.....	worm	sprgs..	sprgs.	int-r-w	ext-r-w.	Ross...
Gramm-Bernstein.....	2½	3300	156	s.	36x4	36x4d	Wauk.	3	4-4¼x5½	29.0	2	l..		p.	d.	Eismn.	h.	s,l*West.	cnt.	motor.	Wauk..	1150	16	Zenith..	g.	s.	dd.	own....	own...	id-c.	amid.	3	7.7	Sheldon	Sheldon	.....	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Ross...
Gramm-Bernstein.....	3½	4000	158*	s.	36x5	40x5d	Wauk.	3	4-4¼x5½	32.4	2	l..		p.	d.	Eismn.	h.	s,l*West.	cnt.	motor.	Wauk..	1100	16	Zenith..	g.	s.	dd.	own....	own...	id-c.	amid.	4	8.7	Sheldon	Sheldon	.....	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Ross...
Gramm-Bernstein.....	5	5000	168*	s.	36x6	40x6d	Wauk.	3	4-4½x6½	36.1	2	l..		p.	d.	Eismn.	h.	s,l*West.	cnt.	motor.	Wauk..	1050	11	Zenith..	g.	s.	c.	own....	own...	id-c.	amid.	4	10.2	Sheldon	Sheldon	.....	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Ross...
Grant.....15	2	1850	124	s.	34x4	34x6	Cont..	3	4-3½x5	22.5	4	l..		t.	s.	Dixie...	..	s z Remy.	cnt.	d-shft.	Pierce..	1400	14	Stewart	g.	s.	dp.	B&Bek.	G-Lees	selec	unt-m.	3	9.0	Torbn..	Cooper.	Arvac.	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w.	Jacox.
Grant.....16	...	1950	140	..	34x4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grant.....10	1½	1540	124	ps	34x4½	34x5	Cont..	3	4-3½x5	22.5	4	l..		t.	s.	Dixie...	..	s,l Remy.	cnt.	d-shft.	Pierce..	1400	20	Stewart	g.	s.	dp.	B&Bek.	G-Lees	selec	unt-m.	3	7.0	Torbn.	Cooper.	Arvac.	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w.	Jacox.
Grant.....11	...	1635	140	..	34x3½*	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grant.....12	¾	1125	115	p.	32x4	32x4	HerSp	2	4-3½x5	16.9	4	l..		t.	s.	Dixie...	..	s,lBijur.	.....	.....	none...	.....	..	Carter..	v.	s.	dp.	B&Bek.	G.Lees	selec	unt-m.	3	5.3	Torbn.	Cooper.	Arvac.	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w.	Ditwl.
Hahn.....B	¾	1200	120	..	34x3	34x3½	Cont..	3	4-3½x5	19.6	4	..		..	..	..	Eismn..	h.	.....	cnt.	motor.	Pierce..	.....	..	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	.....	.....	Torbn.	.....	Spicer.	int-g.	sprgs.	.....	.....	.....	Lvine.
Hahn.....G	1	1350	132	..	34x3	34x4	Cont..	3	4-3½x5	19.6	4	..		..	..	..	Eismn..	h.	.....	cnt.	motor.	Pierce..	.....	..	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	.....	.....	Torbn.	.....	Spicer.	int-g.	sprgs.	.....	.....	.....	Lvine.
Hahn.....C	1½	1950	135	..	36x3½	36x5	Cont..	3	4-4¼x5½	27.2	4	..		..	..	..	Eismn..	h.	.....	cnt.	motor.	Pierce..	.....	..	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	.....	.....	Timkn	.....	Spicer.	worm	rad-rd.	.....	.....	.....	Lvine.
Hahn.....H	2	2000	140	..	34x3½	34x6	Cont..	3	4-4¼x5½	27.2	4	..		..	..	..	Bosch..	h.	.....	cnt.	motor.	Pierce..	.....	..	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	.....	.....	Torbn.	.....	Spicer.	int-g.	rad-rd.	.....	.....	.....	Ross...
Hahn.....E	2½	2500	172	..	36x4	36x4d	Cont..	3	4-4½x5½	32.4	4	..		..	..	..	Bosch..	h.	.....	cnt.	motor.	Pierce..	.....	..	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	.....	.....	Timkn	.....	Spicer.	worm	rad-rd.	.....	.....	.....	Ross...
Hahn.....F	3½	3400	175	..	36x5	36x5	Cont..	3	4-4½x5½	32.4	4	..		..	..	..	Bosch..	h.	.....	cnt.	motor.	Pierce..	.....	..	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	.....	.....	Timkn	.....	Spicer.	worm	rad-rd.	.....	.....	.....	Ross...
Hahn.....I	5	4200	185	..	36x6	38x6	Cont..	3	4-4½x5½	32.4	4	..		..	..	..	Bosch..	h.	.....	cnt.	motor.	Pierce..	.....	..	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	.....	.....	Timkn	.....	Spicer.	worm	rad-rd.	.....	.....	.....	Ross...
Hall.....	2	2350	144	s.	36x4	36x4d	Cont..	3	4-4½x5½	27.2	4	l..		p.	s.	Bosch*.	f..	l, Bosch..	suc.	motor.	Mnrch.	1250	18	Zenith..	g.	s.	dd.	B&Bek.	Covert	selec	unt-m.	3	9.2	Timkn.	Dtrt...	K-B...	worm	sprgs..	sprgs..	int-r-w.	int-r-w.	Genr...
Hall.....	3½	3250	144	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	l..		p.	s.	Bosch*.	f..	l, Bosch..	suc*	motor.	Mnrch*	1200	15	Zenith..	h.	s.	dd.	B&Bek.	B-Lipe.	selec	unt-m.	3	10.5	Timkn.	Dtrt...	K-B...	worm*	sprgs*.	sprgs*.	int-r-w.	int-r-w.	Genr...
Hall.....	{5 {7	4200	144	s.	36x5	40x6d	Cont..	3	4-4½x5½	32.4	2	l..		p.	s.	Bosch*.	f..	l, Bosch*	suc*	motor.	Mnrch*	1200	12	Zenith..	g.	..	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	12.0	Timkn	Dtrt...	K-B...	worm\ d-chn/	sprgs.. rad-rd.	sprgs..	int-r-w.	{int-r-w \ext-j.s.	Genr...
Harvey.....WFA	2½	2850	150	s.	36x4	36x7	Buda..	3	4-4½x5½	29.0	4	l..		p.	s.	Eismn..	a.	s,l West..	cnt.	motor.	Duplex.	1000	16	Stmbg..	g.	s.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	7.75	Sheldon	Sheldon	Spicer.	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Ross...
Harvey.....WHA	3½	3850	160*	s.	36x5	36x5d	Buda..	3	4-4½x6	32.4	4	l..		p.	s.	Eismn..	a.	s,l West..	cnt.	motor.	Duplex.	1000	13	Stmbg..	g.	s.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	8.75	Sheldon	Sheldon	Spicer.	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Ross...
Harvey.....WKA	5	4600	160*	s.	36x6	40x6d	Buda..	3	4-4½x6	32.4	4	l..		p.	s.	Eismn..	a.	s,l West..	cnt.	motor.	Duplex.	1000	11	Stmbg..	g.	s.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	8.75	Sheldon	Sheldon	Spicer.	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Ross...
Harvey Tractor...HT	10	4000	125	s.	36x5	36x5d	Buda..	3	4-4½x6	32.4	4	l..		p.	s.	Eismn..	a.	s,l West..	cnt.	motor.	Duplex.	1000	11	Stmbg..	g.	s.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	8.75	Sheldon	Sheldon	Spicer.	worm	sprgs..	sprgs.	int-r-w	int-r-w.	Ross...
Hawkeye.....K	1½	1850	148	s.	34x3½	34x5	Buda..	3	4-3¾x5½	22.5	4	l..		p.	s.	Eismn..	a.	s,l West*.	cnt.	motor.	Simplex	1500	16	Zenith..	v.	s.	dp.	B&Bek.	G-Lees	selec	unt-m.	3	7.00	Clark..	Dtrt...	Univ...	int-g.	sprgs.	sprgs.	int-r-w	ext-r-w.	Genr...
Hawkeye.....L	2	2250	148½	s.	34x4	34x6	Buda..	3	4-3¾x5½	22.5	4	l..		p.	s.	Eismn..	h.	.....	cnt.	motor.	Simplex	1100	14	Zenith..	g.	s.	dp.	Fuller..	Fuller..	selec	unt-m.	4	9.00	Clark..	Dtrt...	M-Eva.	int-g.	sprgs..	sprgs.	int-r-w	ext-r-w.	Genr...
Hendrickson.....G	2	.....	....	s.	36x4	36x4	Wauk.	..	4-4½x5½	29.0	2	..	..	p.	s.	Dixie...	h.	.....	suc.	motor.	Wauk..	1000	15	Stmbg..	g.	..	dd.	Fuller.	Fuller..	....	unt-m.	..	7.75	Timkn	Tuthill.	.....	worm	rad-rd.	tor-a..	ext-r-w.	ext-r-w.	Ross...
Hendrickson.....H	3½	3000	....	s.	36x5	36x5d	Wauk.	..	4-4½x5½	32.4	2	..	..	p.	s.	Dixie...	h.	l.....	cnt.	motor.	Wauk..	1100	14	Stmbg..	g.	..	dd.	B&Bek.	Cotta..	prog	unt-m.	3	10.3	Timkn	Tuthill.	.....	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Highway Tractor...A	5	.....	93	s.	34x4	36x4	Cont..	..	4-3¾x5	22.5	4	..	..	p.	s.	Diixe...	h.	.....	.....	.....	.....	.....	10	Schblr..	g.	..	dd.	B&Bek.	Warner	selec	unt-m.	2	13.4	own...	.....	.....	int-g.	tor-a..	tor-a..	ext-r-w.	int-f-w	own...
Higrade.....A-18	1	1800	115	p.	35x5	35x5	Cont..	3	4-3½x5	19.6	4	l..	..	p.	..	Simms.	..	s,lLe-Nv.	.....	.....	Simplex	....	20	Zenith..	g.	s.	p..	Fuller..	Fuller.	id-cl	unt-m.	3	4.56	Sheldon	.....	.....	worm	sprgs.	sprgs.	int-r-w	ext-r-w.	Lvine.
Hoover.....	¾	1350	120	p.	32x4	33x4½	Cont..	3	4-3¾x5	19.6	4	l..		..	t.	..	Dixie...	h.	None.....	.....	.....	None...	.....	25	Schblr..	v.	c.	d..	Fuller..	Fuller..	selec	unt-m.	3	6.2	Sheldon	Seldn..	Acme..	worm	sprgs.	sprgs.	int-r-w	int-r-w.	Lvine.
Horner.....	1½	2300	145	s.	3½64	36x4	.....	3	4-4½x5½	27.2	4	..	..	p.	d.	Bosch..	h.	.....	cnt.	motor.	Mnrch.	1200	16	.....	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	.....	.....	Perf..	Spicer..	worm	rad-rd.	.....	int-r-w.	int-r-w.	Ross...
Horner.....	2	2750	145	s.	36x4	36x3½d	.....	3	4-4½x5½	27.2	4	..	..	p.	d.	Bosch..	h.	.....	cnt.	motor.	Mnrch.	1200	16	.....	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	.....	.....	.....	Perf..	Spicer..	worm	rad-rd.	sprgs..	int-r-w.	int-r-w.	Ross...
Horner.....	3	3550	145	s.	36x5	40x4d	Cont..	3	4-4½x5½	32.4	2	t.	..	p.	d.	Bosch..	h.	.....	cnt.	motor.	Mnrch.	1150	12	.....	g.	..	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	9.4	own...	Perf..	Spicer..	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Horner.....	5	4750	156	s.	38x6	42x6d	Cont..	3	4-5½x5½	44.1	2	t.	..	p.	d.	Bosch..	h.	.....	cnt.	motor.	Mnrch.	1050	10	.....	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	3	13.4	own...	Perf..	Spicer..	worm	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross...
Hurlburt.....1	1½	2000	136*	s.	34x4	34x5	Buda..	3	4-3¾x5½	22.5	4	l..		p.	s.	Eismn..	l..	l, Vesta...	cnt.	motor.	Duplex.	1375	18	Flech..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	.625	own...	Merl..	.....	worm	sprgs..	sprgs.	int-r-w.	ext-r-w.	Ross...
Hurlburt.....2	2	3500	148*	s.	36x4	36x4d	Buda..	3	4-4½x5½	29.0	4	l..		p.	d.	Eismn..	l..	l, Vesta...	cnt.	motor.	Duplex.	1300	16	Flech..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.6	own...	Merl..	.....	worm	rad-rd.	t-arm	int-r-w.	ext-sht.	Ross...
Hurlburt.....3	3½	4150	156*	s.	36x5	36x5d	Buda..	4	4-4½x5½	29.0	4	l..		p.	d.	Eismn..	l..	l, Vesta...	cnt.	motor.	Duplex.	1050	13	Flech..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.6	own...	Merl..	.....	worm	rad-rd.	t-arm	int-r-w.	ext-sht.	Ross...
Hurlburt.....5	5	5000	156*	s.	36x5	40x6d	Buda..	4	4-4½x6	32.4	6	l..		p.	d.	Eismn..	l..	l, Vesta...	cnt.	motor.	Duplex.	1360	12	Flech..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	3	10.3	own...	Merl..	.....	worm	rad-rd.	t-arm	int-r-w.	ext-sht.	Ross...
Hurlburt.....7	7	6500	156*	s.	36x6	40x7d	Buda..	3	6-4½x5½	43.3	6	l..		p.	d.	Eismn..	l..	l, Vesta...	cnt.	motor.	Duplex.	1360	12	Flech..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	16.0	own...	Merl..	.....	worm	rad-rd.	t-arm	int-r-w.	int-sht.	Ross...
Independent.....F	1	1385	128*	s*	36x2*	36x4*	Cont..	3	4-3¾x5	19.6	4	..		p.	s.	Eismn..	f..	s,lJesco.	suc.	motor.	Mnrch.	1350	..	Marvel.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	.....	.....	.....	.....	worm	sprgs..	sprgs.	int-r-w.	int-r-w.	Lvine.
Independent.....G	2	1650	144	s.	36x3½	36x5	C

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TRUCKS—Continued

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES: Kind	TIRES: Sizes in Ins. Front	TIRES: Sizes in Ins. Rear	MOTOR: Make Engine	MOTOR: No. of Crankshaft Bearings	MOTOR: Cylinders Bore and Stroke	MOTOR: S. A. E. Hp.	MOTOR: Cylinders Cast	MOTOR: Valves Placed	MOTOR: Spark Plug	MOTOR: Cooling—Water Circulation	MOTOR: IGNITION Type	MOTOR: IGNITION Make	MOTOR: IGNITION Spark Advance	MOTOR: Electric System—Type and Make	MOTOR: GOVERNOR Type	MOTOR: GOVERNOR Drive	MOTOR: GOVERNOR Make	MOTOR: SPEED Motor in r.p.m.	MOTOR: SPEED Truck in m.p.h.	MOTOR: FUEL SYS. Carbureter Make	MOTOR: FUEL SYS. Fuel Feed	MOTOR: FUEL SYS. Tank Location	TRANSMISSION: CLUTCH Type	TRANSMISSION: CLUTCH Make	TRANSMISSION: GEARSET Make	TRANSMISSION: GEARSET Type	TRANSMISSION: GEARSET Location	TRANSMISSION: Speeds	TRANSMISSION: Total Gear Reduction in High	TRANSMISSION: Rear Axle	TRANSMISSION: Springs, Make	TRANSMISSION: Universals, Make	TRANSMISSION: Final Drive	TRANSMISSION: Propulsion Taken By	TRANSMISSION: Torque Taken By	BRAKES: Hand Brake	BRAKES: Foot Brake	Steering Gear
Menominee H	1½	2290	144*	s.	36x3½	36x5	Cont.	3	4-3½x5½	22.5	4	l.		p.	s.	Eismn.	h.		cnt.	d-shft.	opt	800	15	Stmbg.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	9.25	Timkn.	Tuthill.	Spicer.	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Gemr.
Menominee D	2	2715	144*	s.	36x4	36x6*	Cont.	3	4-4½x5½	27.2	4	l.		p.	s.	Eismn.	h.		cnt.	d-shft.	opt	750	14	Stmbg.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	9.25	Timkn.	Tuthill.	Spicer.	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Gemr.
Menominee G	3½	3580	160*	s.	36x5	36x5d	Cont.	3	4-4½x5½	32 4	2	l.		p.	s.	Eismn.	h.		....	.....	opt	750	12	Stmbg.	g.	s.	dp.	B&Bek.	Cotta.	selec	amid.	3	10.3	Timkn.	Titanic.	Spicer.	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Gemr.
Menominee J	5	4540	160	..	36x6	40x6d	Wis...		4-3½x5½	22 5		l.		p.		Eismn.			....	.....	opt	.....	...	Stmbg.	g.	s.	dp.	B&Bek.	Cotta.	id-e.	amid.	3	14.4	Timkn	Titanic.	Acme.	worm.	rad-rd.	sprgs.	.....	.....	Gemr.
Modern 30	...	1800	132	s.	34x3½	34x5	Cont.		4-3½x5	22 5	4			p.	d.	x	f.		....	.....	opt	.....	...	Zenith.	...	dd.	Fuller.	Fuller.	selec	unt-m.	3	...	Timkn	.....	.....	worm.	rad-rd.	sprgs.	ext-r-w.	ext-r-w.	Ross.
Moreland 17-N	1	2175	126	s.	34x3½	34x4	Cont.	3	4-3½x5	22.5	4	l.		t.	s	Dixie.	h.	l, West	cnt.	motor.	Pierce.	1200	19	Master*	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	6.0	Timkn.	own....	Ther.	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross.
Moreland 17-B	1½	2930	126*	s.	36x3½	36x5	Cont.	3	4-4½x5½	27.2	4	l.		p.	s.	Dixie.	h.	l, West	cnt.	motor.	Pierce.	1140	17	Master*	g.	s.	dd.	own....	own....	selec	amid.	4	7.0	Timkn.	own....	Ther.	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross.
Moreland 17-C	2½	3500	144*	s.	36x4	36x7	Cont.	3	4-4½x5½	32.4	2	l.		p	s	Dixie.	h	l, West	cnt.	motor	Pierce.	1090	16½	Master*	g.	s.	dd.	own....	own....	selec	amid.	4	6.8	Timkn.	own..	Ther.	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross.
Moreland 17-G	4	4500	162*	s.	36x5	40x5d	Wauk.	3	4-4½x6½	36.1	2	l.		p.	d.	Dixie.	h	l, West	cnt.	motor.	Wauk.	950	14	Master*	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	7.8	Timkn.	own....	Ther.	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross.
Moreland 17-J	5	5000	180*	ps	36x6	40x6d	Wauk.	3	4-4½x6½	36 1	2	l.		p.	d.	Dixie	h.	l, West	cnt.	motor.	Wauk.	950	12	Master*	g.	..	dd.	B-Lipe.	B-Lipe.	selec	amid.	4	8.8	Timkn.	own..	Ther.	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross.
Moon B	1½	1650	140*	s.	36x3½	36x5*	Cont.	3	4-3½x5½	22 5	4	l.		p	d	Bosch.			....	.....	none.	1800	18	Stmbg.	g.	s.	c..	Hart.	Muncie	selec	unt-j.	3	....	Sheldon	.....	.....	d-chn.	rad-rd.	.....	int-r-w.	int-r-w.	Warner
Muskegon 20	2	2145	144	s.	36x4	36x6	Cont.	3	4-4½x5½	27.2	4	l.		p	s	Eismn.	f.	l, Remy	cnt.	motor.	Pierce.	1230	16	Stwrt.	v.	s.	dd.	Fuller.	Fuller.	selec	unt-m.	3	8.0	Torbn.	....	Arvac.	int-g.	sprgs.	sprgs.	ext-r-w.	int-r-w.	Lvine.
Nash 2017	1	1595	130	s.	34x3	34x4	own...	3	4-3½x5½	22.5	4	l.		p.	s	A-Lite.		s,l A-Lite.	cnt.	motor.	Simplex	1345	20	Stmbg.	g.	s.	dp.	B&Bek.	Dtrt...	selec	unt-m.	3	6.8	Clark.	.....	own....	int-g.	sprgs.	sprgs.	ext-sht.	ext-r-w.	.....
Nash 4017	2	3250	124*	s.	36x5	36x5	Buda..	3	4-4½x5½	29.0	4	l.		p.	s.	Eismn.	h.	s,l A-Lite*	cnt.	motor.	Simplex	1190	15	Stmbg.	g.	s.	dp.	B&Bek.	own....	selec	amid.	3	8.5	own....	.....	Spicer.	int-g-4	sprgs.	sprgs.	ext-sht.	int-4-w.	.....
Nash 3017	2	2075	144	s.	34x4	34x6	own...	3	4-3½x5½	22 5	4	l.		p.	s	A-Lite.	h.	s,l A-Lite.	cnt.	motor.	Simplex	1290	16	Stmbg.	g.	s.	dp.	B&Bek.	Dtrt...	selec	unt-m.	3	8.1	Clark.	.....	own....	int-g.	sprgs.	sprgs.	ext-sht.	ext-r-w.	.....
Nelson & LeMoon E1	1½	1700	opt.	s.	36x3½	36x5	Cont.	3	4-3½x5½	22.5	4	l.		p.	s	Eismn.	h.	s, l West	suc.	motor.	Mnrch.	1100	18	Stmbg.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn.	Tuthill.	.....	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine.
Nelson & LeMoon E2	2	2250	opt.	s.	36x4	36x7	Cont.	3	4-4½x5½	27.2	4	l.		p.	d	Eismn.	h.	s, l West.	suc.	motor.	Mnrch.	1100	18	Stmbg.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.0	Timkn.	Tuthill.	.....	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine.
Nelson & LeMoon E3	3	2950	opt.	s.	36x5	38x5d	Cont.	3	4-4½x5½	32.4	2	l.		p.	d	Eismn.	h.	s,l West.	suc.	motor.	Mnrch.	1100	14	Stmbg.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.7	Timkn.	Tuthill.	.....	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine.
Nelson & LeMoon E5	5	3750	opt.	s.	36x6	40x6d	Buda..	3	4-4½x6	32.4	4			p.	d	Eismn.	h.	s, l West.	suc.	motor.	Mnrch.	1050	11	Stmbg.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	11.3	Timkn.	Tuthill.	.....	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine.
Netco D	2	2800	144*	s.	36x4	36x6	Cont.	3	4-4½x5½	27.2	4	l.		p.	s	Eismn.	f.	.....	....	.....	none.	1800	15	Zenith.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.5	Timkn.	Perf...	Hart...	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross.
Netco H	2½	3200	168*	s.	36x4	36x7	Cont.	3	4-4½x5½	32 4	2	l.		p.	s	Eismn.	f.	.....	....	.....	none.	1500	15	Zenith.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	4	8.5	Timkn.	Perf...	Hart...	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Ross.
New York M	1½	2400	144*	s.	36x3½	36x5	Cont.	3	4-4½x5½	27.2	4	l.		p.	s	Bosch.	f.	None	cnt.	motor.	Pierce.	1400	18	Stmbg.	g.	s.	dp.	B&Bek.	Cotta	id-e.	unt-m.	3	7.7	Timkn.	.....	.....	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	.....
New York N	2	2800	144	s.	36x4	36x4d	Cont.	3	4-4½x5½	27.2		l.		p.	s	Bosch.	f.	None	cnt.	motor.	Pierce.	1100	15	Stmbg.	g.	s.	dp.	B&Bek.	Cotta	id-e.	unt-m.			Timkn	.....	.....	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	.....
Niles B	1	1500	124	p.	35x5	35x5	Cont.	3	4-3½x5	19.6	4	l.		t.	s	Eismn.	h.	.....	cnt.	motor.	Pierce.	1573	25	Stmbg.	g.	s.	dd.	Covert.	Covert.	selec	unt-m.	3	6.5	Timkn.	.....	.....	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Gemr.
Niles E	2	2400	140*	s.	36x4	36x7	Cont.	3	4-4½x5½	27.2	4	l.		p.	s.	Eismn.	h.	.....	cnt.	motor.	Pierce.	1173	15	Stmbg.	g.	s.	dp.	B&Bek.	Covert.	selec	amid.	3	8.5	Timkn.	.....	.....	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Gemr.
Noble NW	2	2300	149	s.	36x4	36x6	Cont.	3	4-4½x5½	27.2	4	l.		p.	s.	Eismn.	f.	l, Remy	cnt.	motor.	Pierce.	1300	16	Stmbg.	v.	..	dp.	B&Bek.	Cotta	id-e.	unt-m.	3	8.75	Sheldon	Kal...	Blood.	worm.	sprgs.	sprgs.	int-r-w.	int-r-w	Ross.
Norwalk 1		1350	130	p.	34x4	34x4s	Lycmg	..	4-3½x5	19.6		l.		t.	s	Deleo.	h	s, l Dynt.	....	.....	.....	1200	22	Carter.	..	..	dp.	.....	.....	.....	.....	3	7.0	.....	C.-C.	Univ.	worm.	sprgs.	sprgs.	int-r-w	int-r-w.	C.A.S.
Norwalk	1½	1450	130	s.	34x3½	34x5	Lycmg	..	4-3½x5	19 6		l.		t.	s.	Deleo	h.	s, l Dynt	....	.....	.....	1200	18	Carter.	v.	s.	dp	.....	.....	.....	.....	3	7.7	.....	C.-C.	Univ.	worm.	sprgs.	sprgs.	int-r-w	int-r-w.	C.A.S.
Old Hickory M	½	99 5	112	p.	33x4	33x4	Lycmg	2	4-3½x5	16.9	4	l.		t.	s.	Conn.	h.	s, l Dynt.	....	.....	None.	960	16	Carter.	g.	d.	c.	Lycmg.	G-Leas.	selec	unt-m.	3	6.0	Salsby.	Tuthill.	Own...	bevel.	tor-t.	tor-t.	int-r-w	ext-r-w.	C.A.S.
Old Reliable	1½	2250	150*	s.	34x3½	36x6	Wis..	3	4-3½x5	22.5	4	l.		p.	s.	Bosch.	h.	l.	....	.....	.....	.....	...	Stmbg.	g.	d.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.7	.....	.....	.....	worm.	sprgs.	sprgs.	int-r-w	int-r-w.	Ross.
Old Reliable	2	3000	150	s.	34x4	36x4d	Wis..	4	4-4x6	25.6	4	l.		p.	s.	Bosch.	h.	l.	ent.	duplx.	Duplex.	.....	...	Stmbg.	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.7	Sheldon	.....	.....	worm.	sprgs.	sprgs.	int-r-w	int-r-w.	Ross.
Old Reliable	3	3750	150	s.	34x5	36x5d	Wis..	4	4-4½x6	29 0	4	l.		p.	s.	Bosch.	h.	l.	ent.	duplx.	Duplex.	.....	...	Stmbg.	g.	..	dd.	.....	B-Lipe.	selec	unt-m.	3	8.7	Sheldon	.....	.....	worm.	sprgs.	sprgs.	int-r-w	int-r-w.	Ross.
Old Reliable	4	4000	....	s.	36x5	40x5d	Wis..	3	4-4½x5½	36.1	2	t.		p.	s.	Bosch.	h.	l.	ent.	duplx.	Duplex.	.....	...	Stmbg.	g.	..	dd.	.....	B-Lipe.	selec	amid.	4	8.7	Sheldon	.....	.....	worm.	sprgs.	sprgs.	int-r-w	int-r-w.	Ross.
Old Reliable	4	4000	....	s.	36x6	36x6d	Wis..	3	4-4½x5½	36.1	2	t.		p.	s.	Bosch.	h.	l.	....	.....	.....	.....	...	Stmbg.	g.	s.	d.	.....	.....	selec	amid.	3	....	Sheldon	.....	.....	d-chn.	rad-rd.	.....	ext....	int....	Ross.
Old Reliable	5	4500	150*	s.	36x6	36x6d	Wis..	3	4-4½x5½	36.1	2	t.		p.	s.	Bosch.	h.	l.	ent.	duplx.	Duplex.	.....	...	Stmbg.	g.	s.	d.	DriSe.	.....	selec	amid.	3	....	.....	.....	.....	d-chn.	rad-rd.	.....	ext-r-w.	int-j-s.	Ross.
Old Reliable	7	5250	150	s.	36x6	40x7d	Wis..	3	4-5 1/16x5½	41.6	2	t.		p.	s.	Bosch.	h.	l.	ent..	duplx.	Duplex.	.....	...	Stmbg.	g.	..	d.	.....	.....	selec	unt-j	4	....	.....	.....	.....	d-chn.	rad-rd	.....	int-r-w.	ext-j-s.	Ross.
Oneida A	1	2290	144	s.	36x3½	36x5	Cont.	..	4-3½x5½	22.5	4	..	..	p.	s.	Bosch.	h.	l, Bosch.	ent.	motor.	Duplex.	980	16	Stmbg.	g.	..	d.	H-Shaw	Cotta.	id-e.	amid.	3	8.7	Timkn.	Mather.	Spicer.	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross.
Oneida B	1½	2650	144	s.	36x3½	36x5	Cont.	..	4-3½x5½	22.5	4	..	..	p.	s	Bosch.	h.	l, Bosch.	ent.	motor.	Duplex.	1040	15	Stmbg.	g.	..	d.	H-Shaw	Cotta.	id-e.	amid.	3	9.2	Timkn.	Mather.	Spicer.	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross.
Oneida C	2	3000	144	s.	36x4	36x4d*	Cont.	..	4-4½x5½	27.2	4	..	..	p.	s.	Bosch.	h.	l, Bosch.	ent.	motor.	Duplex.	970	14	Stmbg.	g.	..	d.	H-Shaw	Cotta.	id-e.	amid.	3	9.2	Timkn.	Mather.	Spicer.	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross.
Oneida D	3½	3600	170	s.	36x5	36x6d	Cont.	..	4-4½x5½	32.4	2	..	..	p.	s.	Bosch.	h.	l, Bosch.	ent.	motor.	Duplex.	1150	12	Stmbg.	g.	..	d.	H Shaw	Cotta.	id-e.	amid.	3	10.3	Timkn.	Mather.	Spicer.	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross.
Overland Panel	½	840	104	p.	31x4	31x4	own...	2	4-3½x5	18.2	4	l.		t.		Conn.	h.	s, l A-Lite.	....	.....	none.	.....	...	Tltsn.	v.	d.	c.	own....	own....	selec	unt-x..	3	4.3	own....	.....	.....	bevel.	tor-t.	tor-t.	int-r-w	ext-r-w.	own....
Overland Express	½	975	106	p.	33x4½	33x4½	own...	5	4-4½x4½	27.2	4	l.		t.		Conn.	h.	s, l A-Lite.	....	.....	none.	.....	...	Tltsn.	g.	s.	c.	own....	own....	selec	unt-x .	3	4.4	own....	.....	.....	sp-bv.	tor-t	tor-t.	int-r-w	ext-r-w.	own....
Packard 1-E	1	2650	126*	s.	34x3½	34x6	own...	4	4-4x5½	25.6	4	l.		p.	d.	Dixie.	h.	s, l Bijur.	cnt.	motor.	own....	1000	16	own....	p.	s.	dd.	own....	own....	selec	amid.	4	6.25	own....	.....	.....	worm.	rad-rd.	t-arm	int-r-w.	ext-sht.	own....
Packard 1½-E	1½	3000	126*	s.	34x3½	34x3½d	own...	4	4-4x5½	25.6	4	l.		p.	d.	Dixie.	h.	s, l Bijur.	cnt.	motor.	own....	1000	16	own....	p.	s.	dd.	own....	own....	selec	amid.	4	6.25	own....	.....	.....	worm.	rad-rd.	t-arm	int-r-w.	ext-sht.	own....
Packard 2-E	2	3400	144*	s.	34x4	34x4d	own...	4	4-4x5½	25.6	4	l.		p.	d.	Dixie.	h.	s, l Bijur.	cnt.	motor.	own....	1000	14	own....	p.	s.	dd.	own....	own....	selec	amid.	4	7.25	own....	.....	.....	worm.	rad-rd.	t-arm	int-r-w.	ext-sht.	own....
Packard 3-E	3	4100	156*	s.	36x5	36x5d	own...	4	4-4½x5½	32.4	4	l.		p.	d.	Dixie.	h.	s, l Bijur.	cnt.	motor.	own....	1000	12	own....	p.	s.	dd.	own....	own....	selec	amid.	4	9.0	own....	.....	.....	worm.	rad-rd.	t-arm	int-r-w.	ext-sht.	own....
Packard 4-E	4	4450	156*	s.	36x5	40x5d	own...	4	4-4½x5½	32.4	4	l.		p.	d.	Dixie.	h.	s, l Bijur.	cnt.	motor.	own....	1000	12	own....	p.	s.	dd.	own....	own....	selec	amid.	4	10.0	own....	.....	.....	worm.	rad-rd.	t-arm	int-r-w.	ext-sht.	own....
Packard 5-E	5	5150	156	s.	36x6	40x6	own...	4	4-5 x5½	40.0	4	l.		p.	d.	Dixie.	h	s, l Bijur.	cnt.	motor.	own....	1000	11	own....	p.	s.	dd.	own....	own....	selec	amid.	4	10.7	own....	.....	.....	worm.	rad-rd.	t-arm	int-r-w.	ext-sht.	own....
Packard 6-E	6	5400	156	s.	36x6	40x7	own...	4	4-5 x5½	40.0	4	l.		p.	d.	Dixie.	h.	s, l Bijur.	cnt.	motor.	own....	1000	11	own....	p.	s.	dd.	own....	own....	selec	amid.	4	10.7	own....	.....	.....	worm.	rad-rd.	t-arm	int-r-w.	ext-sht.	own....
Packet	1/8	299	100	p.	28x3	28x3	Prugh.	2	4-2½x4	12.1	4	l.		t.	s	A.Kent.	a.	.....	....	.....	none.	1500	25	Carter.	g.	d.	..	own....	own....	fric.	unt-j.	3	4.2	own....	.....	.....	d-chn	rad-rd	.....	int-r-w.	int-r-w.	own....
Palmer	1	1685	132½	s.	34x3½	34x4	Cont.	3	4-3½x5	22.5	4	l.	..	t.	s.	Bosch.	f.	.....	....	.....	none.	.....	18	Stmbg.	g.	s.	dd.	Fuller.	Fuller.	selec	unt-m.	3	....	Torbn.	.....	.....	int-g.	sprgs.	sprgs.	int-r-w.	ext-r-w.	Ross.
Palmer	2	2495	144	s.	36x3½	36x3½d	Cont.	3	4-4½x5½	27.2	4	l.	..	p.	s.	Bosch.	f.	.....	cnt.	motor.	Pierce.	1000	15	Stmbg.	g.	s.	dd.	Fuller.	Fuller.	selec	unt-m.	3	7.7	Timkn	.....	.....	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Ross.
Pan-American	2½	2750	160	s.	36x4	36x6	Buda..	..	4-4½x5½	28.9	4	..	..	p.	s.	Dixie	h.	.....	suc.	.....	.....	1100	15	Stmbg.	v.	..	dd.	.....	.....	selec	unt-m.	3	....	.....	.....	.....	int-g.	sprgs.	.....	int.	ext-r-w	Ross.
Panhard A	1	985	125	ps	32x3½	32x3½	Gray.	3	4-3½x5	19 6	4	l.	..	t	s	A-Lite.	h.	l, A-Lite.	....	.....	.....	1600	28	Schblr.	v.	s.	dd.	Fuller.	Fuller.	selec	unt-m.	3	6.5	Torbn.	Kal...	Arvac.	int-g.	tor-t.	sprgs.	int-r-w.	ext-r-w.	Lvine.
Panhard B	1½	1185	130	s.	32x3½	32x4	Gray.	3	4-3½x5	19.6	4	l.	..	t	s.	A-Lite.	h.	l, A-Lite.	....	.....	.....	1600	22	Schblr.	v.	s.	dd.	Fuller.	Fuller.	selec	unt-m.	3	8.0	Torbn.	Kal...	Arvac.	int-g.	tor-t.	sprgs.	int-r-w.	ext-r-w.	Lvine.
Peerless TC3	3	4000	151*	s.	36x4	40x4d	own...	3	4-4½x6½	32.4	2	t	m	p	d.	Remy.	h.	.....	cnt.	motor.	own....	925	14½	Stmbg.	g.	s.	c.	own....	own....	selec	unt-j..	4	7.4	own....	.....	.....	d-chn.	rad-rd.	.....	int-r-w.	ext-j-s.	own....
Peerless TC4	4	4150	151*	s.	36x5	40x5d	own...	3	4-4½x6½	32.4	2	t	m	p	d.	Remy.	h.	.....	cnt.	motor.	own....	925	12½	Stmbg.	g.	s.	c.	own....	own....	selec	unt-j..	4	8.7	own....	.....	.....	d-chn.	rad-rd.	.....	int-r-w.	ext-j-s.	own....
Peerless TC5	5	4700	151*	s	38x6	42x6d	own...	3	4-4½x6½	32.4	2	t.	m	p	d.	Remy.	h.	.....	cnt.	motor.	own....	925	11	Stmbg.	g.	s.	c.	own....	own....	selec	unt-j..	4	10.5	own....	.....	.....	d-chn.	rad-rd.	.....	int-r-w.	ext-j-s.	own....
Peerless TC6	6	5200	151*	s.	38x7	42x7d	own...	3	4-4½x6½	32.4	2	t	m	p	d.	Remy.	h.	.....	cnt.	motor.	own....	925	11	Stmbg.	g.	s.	c.	own....	own....	selec	unt-j..	4	10.5	own....	.....	.....	d-chn.	rad-rd.	.....	int-r-w.	ext-j-s.	own....
Pierce-Arrow	2	3750	150*	s.	36x4	36x4d	own...	3	4-4x5½	25.6	2	t.		p.	s.	Eismn*	h.	.....	cnt.	motor.	own....	1050	16	own....	g.	s.	c.	own....	own....	selec	amid.	4	7.0	own....	.....	.....	worm.	rad-rd.	t-arm	int-r-w.	ext-sht.	own....
Pierce-Arrow	5	5500	168*	s.	36x5	40x6d	own...	3	4-4½x6	38.0	2	t.		p.	d	Bosch*	h.	.....	cnt.	motor.	own....	950	14	own....	g.	s.	c.	own....	own....	selec	amid.	3	7.8	own....	.....	.....	worm.	rad-rd.	t-arm	int-r-w.	ext-sht.	own....
Pullmore	3	3650	163	s.	36x6	36x6	Buda..	..	4-4½x6	32.4	4	l.		p.	s.	Eismn.	h.	West.	cnt.	motor.	Pierce.	1050	12	.....	v.	s.	..	B&Bek.	Warner	selec	unt-m.	3	9.9	own....	.....	.....	bevel.	rad-rd.	rad-rd.	int-r-w.	ext-d-s.	Ross.
Rainier	½	1150	115	p.	33x4	33x4	Light..	2	4-3½x4½	16.9	4	l.		t.	s.	Dixie.	h.	s, l Splitd.	....	.....	none.	2000	34	Zenith.	v.	s.	dp	B-Lipe.	B-Lipe.	selec	unt-m.	3	5.8	Timkn.	Perf...	Hart.	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine.
Rainier	1½	1475	125	s.	32x4	32x4	Light..	..	4-3½x4½	16.9	4	l.		t.	..	Dixie.	h.	s, l Bijur.	....	.....	none.	.....	...	Zenith.	v.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	8.2	Hayes.	Perf...	Hart.	worm.	sprgs.	sprgs.	ext-r-w.	ext-r-w.	Lvine.
Rainier	½	1250	....	..	.....	.....	.....	..	.....	.....	..	..	..	..	..	.....	..	.....	....	.....	.....	.....	...	.....	..	..	..	.....	.....	.....	.....	..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Rennoc	2½	3250	144																																							
Rennoc Tractor	8	3250	116	s.	36x5	36x7	Buda..	..	4-4½x5½	27.2	4	l.	..	p.	d.	Splitdf.	h.	l, West	cnt.	motor.	Pierce.	1200	18	Stmbg.	v.	s.	dd.	Warner	Warner	selec	amid.	4	8.6	sprgs.	Rolnd.	Hart.	worm.	sprgs.	sprgs.	int-r-w.	int-r-w.	Lvine.

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TRUCKS—Continued

Name and Model	Tons Capacity	Price of Chassis	Wheelbase in Inches	TIRES			MOTOR																						TRANSMISSION											BRAKES		Steering Gear
				Kind	Sizes in Ins. Front	Sizes in Ins. Rear	Make Engine	No. of Crankshaft Bearings	Cylinders Bore and Stroke	S. A. E. Hp.	Cylinders Cast	Valves Placed	Spark Plug	Cooling—Water Circulation	IGNITION Type	IGNITION Make	IGNITION Spak Advance	Electric System—Type and Make	GOVERNOR Type	GOVERNOR Drive	GOVERNOR Make	SPEED Motor in r.p.m	SPEED Truck in m.p.h.	FUEL SYS. Carbureter Make	FUEL SYS. Fuel Feed	FUEL SYS. Tank Location	CLUTCH Type	CLUTCH Make	GEARSET Make	GEARSET Type	GEARSET Location	GEARSET Speeds	Total Gear Reduction in High	Rear Axle	Springs, Make	Universals, Make	Final Drive	Propulsion Taken By	Torque Taken By	Hand Brake	Foot Brake	
Titan	5	5000	156	s.	36x6	40x6d	Buda..	3	4-4½x6	32.4	4	..	..	p.	s	Bosch..	h.	l, Bosch..	cnt.	motor.	Simplex	1000	12	Stmbg..	g.	s.	dp.	B&Bek.	Cotta..	id-c.	amid..	3	11.0	Clark..	Sheldon		int-g..	rad-rd.	sprgs.	int....	int....	Lvine..
Traffic	2	1095	133	..	34x3	34x4	Gray..	3	4-3½x5	19.6	4	..	..	t.	..	Kngstn.	h.	.....	.....	.....	.....	1500	16	Special.	g.	d.	d..	B&Bek.	Covert.	selec	unt-m.	3	8.2	Russel..	Dtrt..	Arvac..	int-g..	sprgs..	sprgs..	int....	ext....	Ditwlr.
Transport Tractor...N	5	2750	80	s.	34x3½	34x4d	.....	3	4-3½x5	22.5	4	L.	..	t.	s.	Bosch..	f.	.....	suc.	motor.	Mnrch.	....	12	Zenith..	g.	..	dd.	.....	.....	selec	unt-m.	4	....	.....	.....	.....	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	.....
Triangle	A	1½	2185	144	s.	34x3½	34x6	Wauk.	..	4-3½x5½	22.5	4	..	..	p.	s.	Eismn..	f..	.....	cnt.	motor.	Wauk..	1200	15	Stmbg..	g.	..	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.0	Clark..	.....	.....	int-g..	sprgs..	sprgs.	ext-r-w.	ext-sht.	Gemr..
Union	B	2½	2375	152	s.	39x4	39x6	Wis...	4	4-4x6	25.6	4	L.	..	p.	s.	Eismn..	h.	l*.....	cnt.	d-shft.	Simplex	1200	15	Schblr..	g.	d.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.7	Russel..	Mthr...	.....	int-g..	sprgs..	sprgs.	int-r-w.	ext-r-w.	Ross...
United	AX	1½	1850	132	s.	34x3½	34x5	Buda..	3	4-3½x5	22.5	4	L.	..	p.	s.	Eismn..	h.	s,l.....	cnt.	motor.	Simplex	1125	16	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	7.7	Sheldon	Tuthill.	Blood..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
United	BX	2½	2550	148	s.	36x4	36x8	Buda..	3	4-4½x5½	28.9	4	L.	..	p.	s.	Eismn..	h.	s,l*.....	cnt.	motor.	Simplex	888	14	Stmbg..	g.	s.	dd.	B&Bek.	B-Lipe.	selec	amid..	4	8.5	Sheldon	Sheldon	Blood..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
United	CX	3	3450	160	s.	36x5	36x5	Buda..	3	4-4½x6	32.4	2	t.	..	p.	s.	Eismn..	h.	s,l*.....	cnt.	motor.	Simplex	980	12	Stmbg..	g.	s.	dd.	B&Bek.	B-Lipe.	selec	amid..	4	8.7	Sheldon	Tuthill.	Blood..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
United	VX	5	4500	160	s.	36x6	40x6	Buda..	3	4-4½x6	32.4	2	t.	..	p.	s.	Eismn..	h.	s,l*.....	cnt.	d-shft.	Simplex	951	12	Stmbg..	g.	s.	dd.	B&Bek.	B-Lipe.	selec	amid..	4	11.6	Sheldon	Tuthill.	Blood..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
United Tractor		6	2490	110	s.	34x3½	34x7	Buda..	..	4-4½x5½	27.2	4	L.	..	p.	s.	Bosch..	..	.....	.....	.....	.....	.....	..	Zenith..	g.	s.	..	Muncie	Muncie	selec	unt-m.	4	10.0	Sheldon	.....	.....	int-g..	rad-rd.	.....	int-r-w.	int-r-w.	Ross...
U. S.	E	2½	2800	144*	s.	34x4	36x4d	Cont..	3	4-4½x5½	27.2	4	L.	..	p.	d.	Bosch..	h.	l, Bosch..	cnt.	motor.	Pierce..	1160	15	Stmbg..	g.	s.	c..	Hart...	Cotta..	id-c.	amid..	3	8.2	own...	Tuthill.	Hart...	d-chn.	rad-rd.	.....	int-r-w.	ext-r-w.	Lvine..
U. S.	H	2½	3250	144*	s.	34x4	36x4d	Cont..	3	4-4½x5½	27.2	4	L.	..	p.	d.	Bosch..	h.	l, Bosch..	cnt.	motor.	Pierce..	1160	15	Stmbg..	g.	s.	c..	Hart...	Cotta..	id-c.	amid..	3	8.7	Sheldon	Sheldon	Hart...	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Lvine..
U. S.	D	3½	3500	162*	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	L.	..	p.	d.	Bosch..	h.	l, Bosch..	cnt.	motor.	Pierce..	1090	13	Stmbg..	g.	s.	c..	Hart...	Cotta..	id-c.	amid..	3	8.1	own....	Tuthill.	Hart...	d-chn.	rad-rd.	.....	int-r-w.	ext-r-w.	Lvine..
U. S.	J	3½	3950	162*	s.	36x5	40x5d	Cont..	3	4-4½x5½	32.4	2	L.	..	p.	d.	Bosch..	h.	l, Bosch..	cnt.	motor.	Pierce..	1090	13	Stmbg..	g.	s.	c..	Hart...	Cotta..	id-c.	amid..	3	11.7	Sheldon	Sheldon	Hart...	worm.	rad-rd.	.....	int-r-w.	int-r-w.	Lvine..
U. S.	K	5	4850	168*	s.	36x5	40x6d	Wauk.	3	4-4½x6½	36.1	2	L.	..	p.	d.	Bosch..	h.	l, Bosch..	cnt.	motor.	Wauk..	950	12	Stmbg..	g.	s.	dp.	B&Bek.	Cotta..	id-c.	amid..	3	8.8	Sheldon	Sheldon	Hart...	worm.	rad-rd.	sprgs.	int-r-w.	int-r-w.	Lvine..
Universal	G	1½	1950	133*	s.	34x3½	34x5	Buda..	2	4-3½x5½	22.5	4	L.	..	t.	d.	Eismn..	..	.....	cnt.	motor.	own...	1160	15	Zenith..	g.	s.	dp.	B&Bek.	Covert.	selec	unt-m.	3	7.2	own...	.....	.....	worm.	rad-rd.	.....	int.	int.	Lvine..
Universal	D	2	2800	132*	s.	36x4	36x4d	Buda..	3	4-4x5½	25.6	2	t.	..	p.	d.	Eismn..	..	.....	cnt.	motor.	own...	1057	12	Zenith..	g.	s.	dd.	own....	own....	selec	amid..	3	9.1	own...	.....	.....	d-chn.	rad-rd.	.....	ext.	int....	Lvine..
Universal	A	3	3400	132*	s.	36x5	36x5d	Buda..	3	4-4x5½	25.6	2	t.	..	p.	d.	Eismn..	h.	.....	cnt.	motor.	own...	1057	12	Zenith..	g.	s.	dd.	own....	own....	selec	amid..	3	10.2	own...	.....	.....	d-chn.	rad-rd.	.....	ext-sht.	int-r-w.	Lvine..
Velie	25A	2	2750	150*	s.	36x4	36x7	Cont..	3	4-4½x5½	27.2	4	L.	..	p.	s.	Bosch..	h.	None....	cnt.	motor.	Pierce..	1008	18	Stmbg..	v.	s.	dp.	own....	B-Lipe.	selec	amid..	4	7.7	Timkn.	Mthr..	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Velie	26A	3½	3600	172*	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	2	L.	..	p.	s.	Bosch..	h.	None....	cnt.	motor.	Pierce..	1215	15	Stmbg..	v.	s.	dp.	own....	B-Lipe.	selec	amid..	4	10.3	Timkn.	Mthr..	Spicer..	worm.	rad-rd.	sprgs..	int.	int.	Gemr..
Vim	21		845	108	p.	31x4	31x4	own...	3	4-3x4½	14.4	4	L.	..	t.	s.	Dixie..	h.	.....	.....	.....	.....	.....	25	Zenith..	g.	s.	c..	own....	own....	selec	unt-m.	3	5.25	W-W...	Sheldon	Spicer..	bevel..	sprgs..	sprgs.	ext-r-w.	int-r-w.	Jacox..
Vim	22	1½	3150	142	s..	36x4	36x6	own...	5	4x3½x5½	22.5	4	..	..	p.	..	Dixie...	h.	.....	.....	.....	Simplex	....	20	Zenith..	g.	s.	dp.	own...	own.....	.....	amid..	4	....	Sheldon	.....	.....	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	.....
Vim	23		3950	150*	s.	36x4	36x4d	own...	5	4x4½x5½	28.9	4	..	..	p.	..	Dixie...	h.	.....	.....	.....	Simplex	....	16	Zenith..	g.	s.	dp.	own...	own.....	.....	amid..	4	....	Sheldon	.....	.....	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	.....
Walter	F	5	5000	156	s.	40x6	40x6d	own...	..	4-4½x6½	36.1	4	..	..	p.	s.	Eismn..	f..	s,l West..	....	motor.	own...	1000	..	H&N..	g.	..	dp.	own....	own....	selec	amid..	4	8.0	own...	Merl...	.....	int-g-v	sprgs..	sprgs..	int-r-w.	ext-sht.	own....
Watson	Tractor	5	4050	80	s.	36x4	40x5d	Cont..	3	4-4½x5½	32.4	2	L.	..	p.	d.	Bosch..	h.	.....	cnt.	motor.	Pierce..	1100	11	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	amid..	4	11.6	Timkn.	Sheldon	Spicer.	worm.	rad-rd.	sprgs..	int-r-w.	int-r-w.	Gemr..
White	GBBE		2300	133½	p.	34x4½	34x4½	own...	2	4-3½x5½	22.5	4	L.	m	p.	s.	.....	h.	s,l*.....	.....	.....	none..	.....	...	own...	g.	s.	p..	own....	own....	selec	amid..	4	....	own...	.....	own...	bevel..	sprgs..	rad-rd.	int-r-w.	ext-r-w.	own....
White	TBC	1½–2	3300	157½	s*	36x3½	36x3½d	own...	2	4-3½x5½	22.5	4	L.	m	p.	s.	.....	h.	s,l*.....	.....	.....	none..	.....	...	own...	g.	s.	p..	own....	own....	selec	amid..	4	....	own...	.....	own...	d-red..	sprgs..	rad-rd.	int-r-w.	ext-r-w.	own....
White	TAD	3	4100	163	s.	36x5	40x5d	own...	2	4-3½x5½	22.5	4	L.	m	p.	s.	.....	h.	.....	.....	.....	none..	.....	...	own...	g.	s.	p..	own....	own....	selec	amid..	4	....	own...	.....	own...	d-chn.	sprgs..	rad-rd.	int-r-w.	ext-j-s..	own....
White	TCD	5	5000	169	s.	36x5	40x6d	own...	3	4-4½x6½	29.0	4	L.	m	p.	s.	.....	h.	.....	.....	.....	none..	.....	...	own...	g.	s.	p..	own....	own....	selec	amid..	4	....	own...	.....	own...	d-chn.	sprgs..	rad-rd.	int-r-w.	ext-j-s..	own....
Wichita	A	1	1800	110*	s.	34x3	34x4	own...	2	4-3½x5	19.6	4	L.	..	t.	s.	Bosch..	h.	s,l.....	.....	.....	none..	.....	15	Stmbg..	g.	s.	c..	own....	Covert.	selec	unt-j..	3	7.3	Sheldon	.....	own...	d-chn.	rad-rd.	t-arm.	int-r-w.	int-sht.	Ross...
Wichita	K	1	1800	118*	s.	36x3	36x4	own...	2	4-3½x5	19.6	4	L.	..	t.	s.	Bosch..	h.	s,l.....	.....	.....	none..	.....	15	Stmbg..	g.	s.	c..	own....	Covert.	selec	amid..	3	7.8	Sheldon	.....	own...	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wichita	L	1½	2100	118*	s.	36x3	36x5	own...	2	4-3½x5	19.6	4	L.	..	t.	s.	Bosch..	h.	s,l.....	.....	.....	none..	.....	15	Stmbg..	g.	s.	c..	own....	Covert.	selec	amid..	3	8.6	Sheldon	.....	own...	worm.	sprgs..	sprgs..	ext-r-w.	int-r-w.	Ross...
Wichita	B	2	2500	118*	s.	34x3½	34x6	own...	2	4-3½x5	19.6	4	L.	..	t.	s.	Bosch..	h.	s,l.....	.....	.....	none..	.....	13	Stmbg..	g.	s.	c..	own....	Covert.	selec	unt-j..	3	8.2	Sheldon	.....	own...	d-chn.	rad-rd.	t-arm.	int-r-w.	int-sht.	Ross...
Wichita	R	2½	2700	144*	s.	36x4	36x7	Wauk.	3	4-3½x5½	22.5	4	L.	..	p.	s.	Bosch..	h.	s,l.....	cnt.	motor.	Wauk..	1060	13	Stmbg..	g.	s.	c..	own....	Covert.	selec	amid..	3	10.6	Sheldon	.....	own...	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Wichita	O	3½	3600	165*	s.	36x5	36x5d	Wauk.	3	4-4½x5½	32.4	2	L.	..	p.	s.	Bosch..	h.	s,l.....	cnt.	motor.	Wauk..	1200	11	Stmbg..	g.	..	c..	Hart...	Covert.	selec	amid..	3	11.7	Sheldon	.....	own...	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Wichita	Q	5	4300	165*	s.	40x6	40x6d	Wauk.	3	4-4½x5½	32.4	2	L.	..	p.	s.	Bosch..	h.	s,l.....	cnt.	motor.	Wauk..	940	9	Stmbg..	g.	s.	c..	Hart...	Covert.	selec	amid..	3	13.7	Sheldon	.....	own...	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Wichita	M	2	2500	144	s.	36x3½	36x6	Wauk.	3	4-3½x5½	22.5	4	L.	..	p.	s.	Bosch..	h.	s,l.....	cnt.	motor.	Wauk..	1060	13	Stmbg..	g.	s.	..	.....	Fuller..	selec	amid..	3	10.6	Sheldon	.....	own...	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Wilcox	S	1	1950	128	p*	35x5*	35x5*	Cont..	3	4-3½x5	22.5	4	L.	..	t.	s.	Bosch..	h.	l, West...	cnt.	motor.	Pierce..	1200	18	Stmbg..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	6.5	Sheldon	Sheldon	Spicer..	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Wilcox	X	1½	2775	144	s.	36x4	36x5	own...	3	4-4½x5	29.0	2	L.	..	p.	s.	Bosch..	h.	l, West...	cnt.	motor.	Pierce..	1100	16	Stmbg..	g.	s.	c..	own....	own....	selec	amid..	3	7.7	Sheldon	Sheldon	own*...	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Gemr..
Wilcox	Q	2	3250	150*	s.	36x4	36x3½d	own...	3	4-4½x5	29.0	2	L.	..	p.	s.	Bosch..	h.	l, West...	cnt.	motor.	Pierce..	1100	14	Stmbg..	g.	s.	c..	own....	own....	selec	amid..	3	8.7	Sheldon	Sheldon	own*...	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Gemr..
Wilcox	P	3½	3950	154*	s.	36x5	36x5d	own...	3	4-4½x5	29.0	2	L.	..	p.	s.	Bosch..	h.	l, West...	cnt.	motor.	Pierce..	1100	10	Stmbg..	g.	s.	c..	own....	own....	selec	amid..	3	11.7	Sheldon	Sheldon	own....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Gemr..
Wilcox	W	5	4850	162	s.	36x5	40x6d	Wauk.	..	4-4½x6½	36.1	2	..	..	p.	s.	Bosch..	h.	.....	cnt.	motor.	Wauk..	1000	12	Stmbg..	v.	s.	c..	own....	own....	selec	amid..	4	8.7	Sheldon	Sheldon	Spicer*.	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Gemr..
Wilson		1	1560	124*	p.	35x5	35x5	Cont..	3	4-3½x5	19.6	4	L.	..	p.	s.	Eismn..	f..	.....	cnt.	motor.	Pierce..	1800	20	.....	g.	s.	dd.	.....	Covert.	selec	unt-m.	3	....	.....	.....	.....	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Wilson	E	2	2550	144	s.	36x4	36x4d	Cont..	3	4-4½x5½	27.2	4	L.	..	p.	s.	Eismn..	f..	.....	cnt.	motor.	Pierce..	1050	15	Marvel.	g.	s.	c..	Hart...	Covert.	selec	amid..	3	8.6	Sheldon	.....	.....	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Wilson		3½	3800	160	s.	36x5	36x5d	Cont..	3	4-4½x5½	32.4	4	L.	..	p.	s.	Eismn..	f..	.....	cnt.	motor.	Pierce.	1100	13	Marvel.	g.	s.	dd.	Warner	Warner	selec	amid..	4	8.75	Sheldon	.....	.....	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Wilson		5	4600	160	s.	36x6	40x6d	Cont..	3	4-4½x5½	32.4	4	L.	..	p.	s.	Eismn..	f..	.....	cnt.	motor.	Pierce..	1100	12	Marvel.	g.	s.	dd.	Warner	Warner	selec	amid..	4	10.2	Sheldon	.....	.....	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Winther	28	1	2250	132	s.	34x3½	34x5	Wis...	4	4-3½x5	16.9	4	L.	..	p.	s.	Eismn..	h.	Bijur....	cnt.	motor.	Duplex.	1000	18	Master.	v.	d.	dp.	B&Bek.	B-Lipe.	selec	amid..	4	7.0	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs.	ext-r-w.	int-r-w.	Ross...
Winther	48	2	3000	150	s.	36x4	36x4d	Wis...	1	4-4x6	25.6	4	L.	..	p.	s.	Eismn..	h.	Bijur....	cnt.	motor.	Duplex.	1100	16	Master.	v.	d.	dp.	B&Bek.	B-Lipe.	selec	amid..	4	8.1	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs.	ext-r-w.	int-r-w.	Ross...
Winther	68	3	3600	150	s.	36x5	36x5d*	Wis...	1	4-4x6	25.6	4	L.	..	p.	s.	Eismn..	h.	Bijur....	cnt.	motor.	Duplex.	1300	15	Master.	v.	d.	dp.	B&Bek.	B-Lipe.	selec	amid.	4	10.0	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs.	ext-r-w.	int-r-w.	Ross...
Winther	88	4	4200	156	s.	36x5	.....	Wis...	1	4-4½x6	28.9	4	L.	..	p.	s.	Eismn..	h.	Bijur....	cnt.	motor.	Duplex.	1300	14	Master.	v.	d.	dp.	B&Bek.	B-Lipe.	selec	amid..	4	12.5	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Winther	108	5	5000	162	s.	36x5	40x6d*	Wis...	1	4-4½x5½	36.1	2	L.	..	p.	s.	Eismn..	h.	Bijur....	cnt.	motor.	Duplex.	1100	12	Master.	v.	d.	dp.	B&Bek.	B-Lipe.	selec	amid..	4	12.5	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Winther	128	6	5250	162	s.	36x6	40x12	Wis...	1	4-5½x5½	42.0	2	L.	..	p.	s.	Eismn..	h.	Bijur....	cnt.	motor.	Duplex.	1100	11	Master.	v.	d.	dp.	B&Bek.	B-Lipe.	selec	amid..	4	12.5	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Winther	148	7	5500	162	s.	36x6	40x14	Wis...	3	4-5½x6½	42.0	2	L.	..	p.	s.	Eismn..	h.	Bijur....	cnt.	motor.	Duplex.	1100	10	Master.	v.	d.	dp.	B&Bek.	B-Lipe.	selec	amid..	4	12.5	Clark..	Mthr...	Blood..	int-g..	sprgs..	sprgs.	ext-r-w.	int-r-w.	Ross...
Witt Will	WD18	1	2000	120	s*	36x3*	36x4*	Cont..	3	4-3½x5½	22.5	4	L.	..	p.	s.	Eismn..	a.	.....	cnt.	motor.	Pierce.	.....	..	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	....	Timkn.	.....	.....	worm.	sprgs..	sprgs..	int-r-w.	int-r-w.	Ross...
Witt Will	WD18	2	2850	144	s.	36x3½	36x7	Cont..	3	4-4½x5½	27.2	4	L.	..	p.	s.	Eismn..	a.	.....	cnt.	motor.	Pierce.	.....	..	Zenith..	g.	s.	dd.	B-Lipe.	B-Lipe.	selec	unt-m.	3	....	Timkn.	.....	.....	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Ross...
Wisconsin	B	1½	1650	136	s.	34x3½	34x4	Wauk.	3	4-3½x5½	19.6	4	L.	..	p.	s.	Eismn..	h.	.....	cnt.	motor.	Wauk..	1200	15	Master.	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	7.7	Sheldon	Sheldon	Blood..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Lvine..
Wisconsin	C	2½	2800	156*	s.	36x4	36x6*	Wauk.	3	4-4x5½	25.6	2	L.	..	p.	s.	Eismn..	h.	.....	cnt.	motor.	Wauk..	1100	14	Master.	g.	s.	dd.	Fuller..	Fuller..	selec	unt-m.	3	8.7	Sheldon	Sheldon	Blood..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Lvine..
Wisconsin	E	5	5000	166	s.	36x6	40x6d	Wauk.	3	4-4½x6½	36.1	2	L.	..	p.	s.	Eismn..	h.	.....	cnt.	motor.	Wauk..	1300	12	Master.	g.	s.	dd.	B&Bek.	Cotta..	id-c.	unt-m.	3	11.5	Sheldon	Sheldon	Blood..	worm.	sprgs..	sprgs.	int-r-w.	int-r-w.	Lvine
W. S.	4	3½	.....	154	s.	36x6	36x6	Cont..	3	4-4½x5½	27.2	2	..	..	p.	d.	Natl...	h.	.....	.....	.....	.....	.....	...	Zenith..	g.	s.	d..	Fuller..	Fuller..	.....	unt-m.	3	....	Timkn.	.....	.....	wm-4.	sprgs..	sprgs..	int....	int....	Ross...

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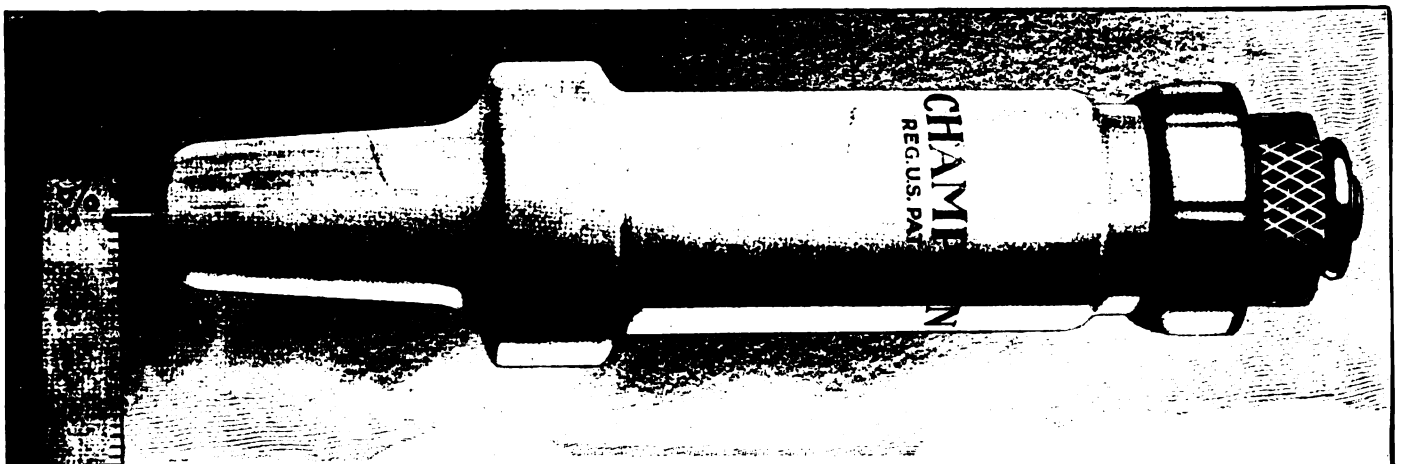
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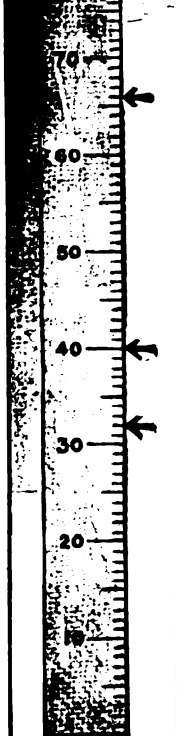
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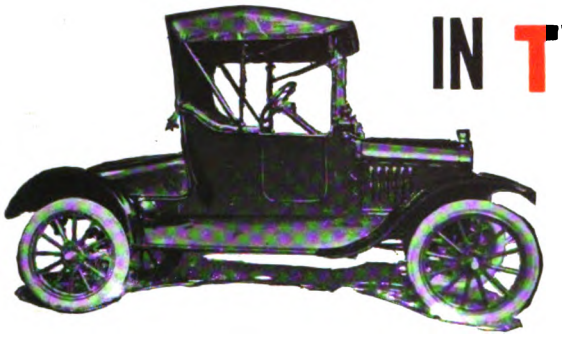
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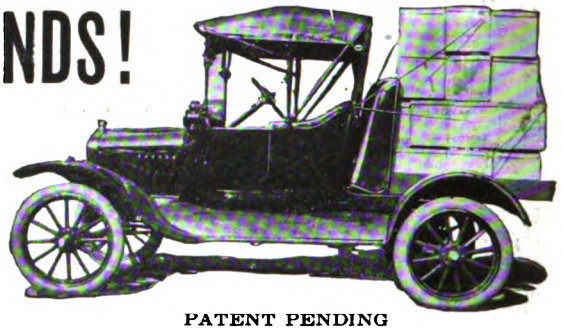
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Utility Sure-Grip Pedals for Fords



$1.00 per pair

Absolutely prevent foot slipping from clutch or brake pedal. Utility Sure-Grip pedals transform the small, smooth Ford pedals into standard size, safe, comfortable pedals.

Attached instantly—no holes to drill, no special tools required—one nut to tighten and the job is done. Once they are installed they absolutely cannot slip off.

DEALERS—Send for a sample pair.

DEALERS!

Order your sample now and write for complete details and the agency for your community.

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MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

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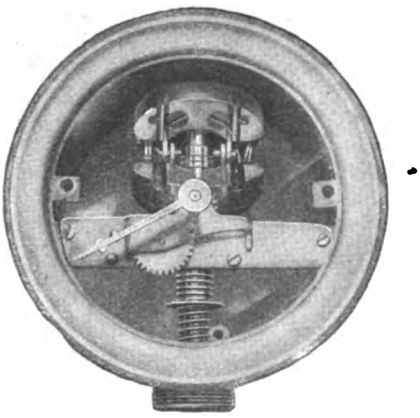
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Simplicity That Assures Strength and Accuracy

THE accompanying illustration shows the absence of complicated mechanism and emphasizes the simple sturdiness of the operating parts in the

CORBIN-BROWN SPEEDOMETER

It will be noted that the parts are few, big and strong. They are made to wear long and stand up under the hardest jolts and the most severe, continuous usage.

The centrifugal governor in the Corbin-Brown has four balance weights so sensitive that they respond to the slightest variation in speed. This centrifugal principle is the same that applies to the control of engines. It insures absolute regularity of revolution. In any mechanism, simplicity, strength and reliability always go together. That is why you find all of these qualities so strongly featured in the Corbin-Brown speedometer.

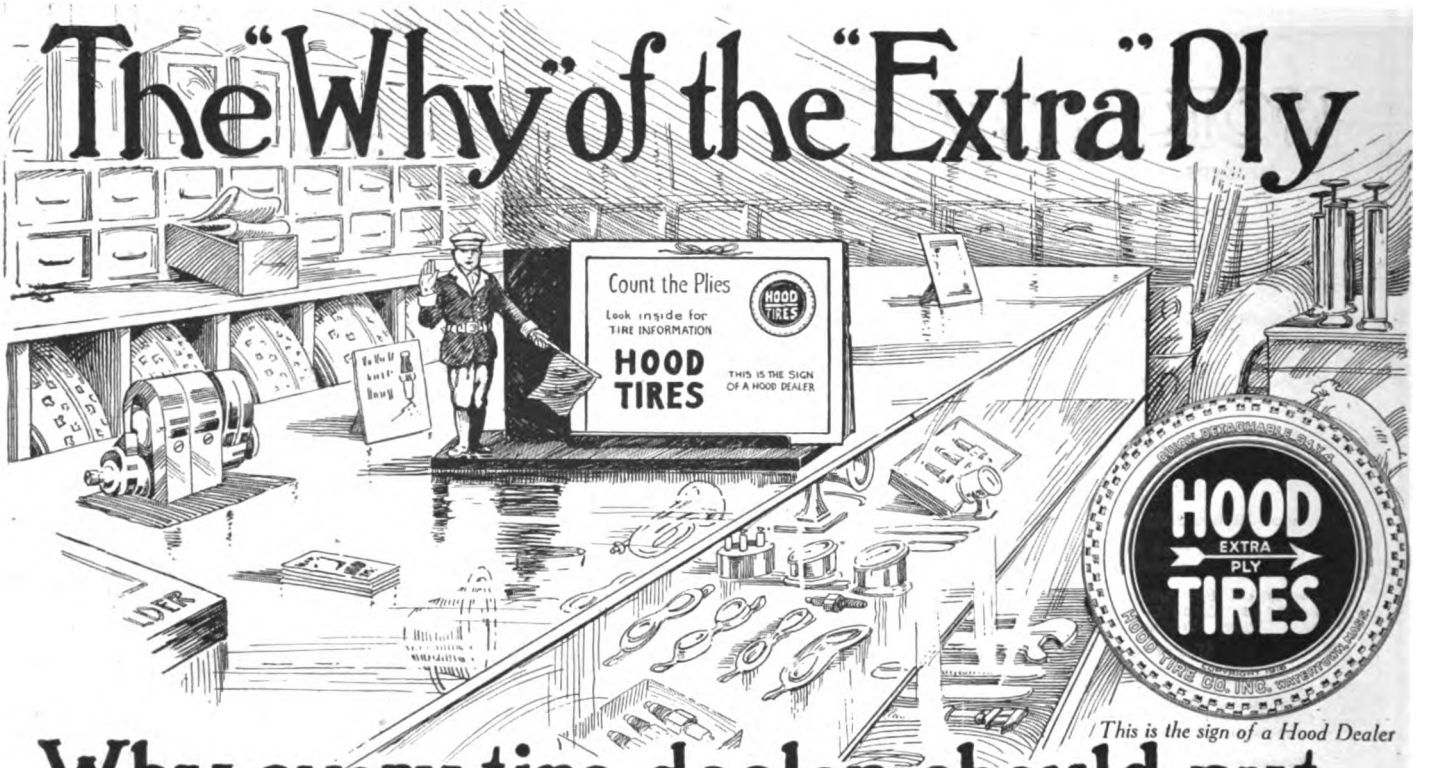
Ask your dealer about the Corbin-Brown Maximum Speed Hand and be sure to specify it. This extra feature registers your highest speed and remains at that point until reset to zero, which can be done in an instant.

Catalog on Request.

CORBIN SCREW CORPORATION
American Hardware Corporation, Successor
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This is the sign of a Hood Dealer

Why every tire dealer should put this Silent Salesman on his Counter

Because this Silent Salesman proves "Why" the Hood Arrow Tread Extra Ply Tire has won a reputation for low cost mileage that, tire for tire, is unequaled in the business—

Because this Silent Salesman shows the different construction of the Hood Tire, its greater wear resisting strength, its thickness, toughness, quality—

Because this Silent Salesman gives a convincing sales reason to every tire purchaser and any Hood Tire will back it with performance.

Because this Silent Salesman makes sales and Hood Tires keep them repeating for every dealer who sells them—

Because repeat orders and selling a tire that gives you a reputation for quality is an asset, good business to invest in—

Because we place a large organization behind you, working all the time to promote your sales by national advertising and personal assistance and—best of all—give you a tire on which you can make the most profit per tire sold.

Write us—let us prove it. Fill out and mail the coupon.

Send for free booklet on "Tire Information"

Fill out and mail this Coupon today

Send me Free Booklets on Tire Information.

Name .....

City .....

State .....

HOOD TIRE CO., Inc.

WATERTOWN, MASS.

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MOTOR WORLD for DEALERS, JOBBERS AND GARAGEMEN

Vol. LV New York, U. S. A., Wednesday, June 12, 1918 No. 11

Jobbers Convene

Broadened Scope of National Body May Bring Change of Name—Rising Costs and Chicago Exhibit Chief Topics of Discussion

By Ray W. Sherman

HOT SPRINGS, VA., June 10.—The proposed jobbers' exhibit or show in Chicago at the time of the fall meeting and the rapidly rising cost of doing business are the two big subjects that have come up thus far at the Summer Session of the National Association of Automobile Accessories Jobbers.

It also is not unlikely that the organization may change its name to International Automotive Equipment Association, the better to describe its aims and membership. It to-day took in a member from London, England, and for some time has had a strong membership in Canada.

From the way things are moving at the opening session, it looks as though the show, or exhibit as it is styled, will be held at the time of the fall meeting and that the dates will be the last 4 days in October and the first 2 days in November.

This afternoon, separate sessions were held by the manufacturers and jobbers. The manufacturers aired several matters relating to the show and put their sentiments into a resolution for introduction in the joint sessions on the following days of this week.

They also discussed the advisability of manufacturing members being placed on the same basis as jobber members. At present the manufacturers pay smaller dues and receive no convention expenses, while the jobbers get some convention expenses, yet pay larger dues. The net result is much the same financially, but the present arrangement tends to require an attendance of jobbers, and there is no financial incentive for the manufacturing members.

At the session of the jobbers much interesting discussion developed on the subject of rising costs. Catalogs are printed and sometimes before the ink is dry prices change. Some are resorting to sales letters and special bulletins to publish new prices, while others have found no way of getting from under. The result is that some jobbers are in a quandary as to what to do to make money this year.

On articles of which there is no widely advertised list prices, it was reasoned that new lists can easily be made, but that on articles with advertised lists it is difficult and sometimes impossible to make any profit.

It was suggested that it would be a good idea if list prices were left off cartons and packages temporarily at least. Some of the jobbers are marking prices up sufficiently to protect themselves against the numerous expense increases, such as rail rates, traveling costs and labor.

Among those present is former President Sidney B. Dean, who is now a lieutenant buying trucks for the Signal Corps in Washington.

An ovation was given the Canadian members when J. Ernest Millen delivered a patriotic address and presented the association with a Canadian flag. The service flag of the association contains 14,876 stars.

There was some discussion when it was proposed that all future members must qualify as wholesale only, but since this means a change in the by-laws it cannot be acted upon until the fall meeting.

The jobbers to-day also discussed in detail the manner of paying salesmen and the cost and method of using cars in traveling the men. Most of them favored the use of cars and nearly all differed in their method of handling their road costs.

Sessions will be held every morning until Friday with an afternoon session Tuesday also.

The attendance is up to par, which is considered exceptional with the time of year and conditions considered.

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This Organization Has

No Dues, No Constitution, No By-Laws

Yet the Chicago Used Car Managers Association Is Working Wonders in Taking the Snarls Out of the Trade

THE Used Car Managers' Association of Chicago is a peculiar and unique institution, if institution it may be called. It has neither constitution nor by-laws; it has no membership dues; it has a membership limited strictly to the used-passenger car department of the motor car business and even this is a delegate membership and is not invariable; it has but one permanent official, the others changing every six months; it has no executive authority or power; it has no influence upon the motor car trade except indirectly and only insofar as that influence may affect the morale and personnel of the used car trade. Yet, despite all these negotiations, it is a tangible organization for a distinct purpose and accomplishing much good in the direction of that purpose.

Good fellowship breeds plain speaking. Secrets are bared and ill-feeling simply cannot exist when a bunch of men get their knees under the same lunch table. That's why this association is so successful.

Essentially a Committee

The Used Car Managers' Association is in substance a committee which exists under the immediate direction and control of the Chicago Automobile Trade Association, yet none of the men composing the committee are members of the trade association. Every used car dealer, whether he operates independently or whether he is the hired manager of the used car department of some passenger car company, may, in the former case, delegate one of his employees to represent him in the association, or, in the latter case, may himself be a member. Each firm may be represented by one delegate only, and in the case of the independent dealer he himself cannot belong. Neither is the independent used car dealer permitted to attend any of the meetings of the association. The delegate members belong indefinitely. The effect of this is to limit the membership to employees only, and to only one employee from each firm represented.

The executive officer of the association is T. D. Beard, assistant secretary of the Chicago Automobile Trade Association, whose official title in the Used Car Managers' Association is secretary-treasurer, although as the association has no dues, hence no funds, the second half of this hyphenated title is a sinecure. The office of secretary-treasurer is not elective, Beard serving permanently. The other officers of the association are a chairman and a vice-chairman, selected semi-annually, the present incumbents being J. L. Kelly of the Peerless used car department and J. McCarthy of the Wilton, respectively.

The association meets once a month at dinner, each member paying his own shot, In time the cost of the dinner may be assumed by the Association, or will be assessed against the used car firms represented, since all the independent used car dealers and the motor car companies maintaining used car departments belong to the trade association, but for the present the other custom prevails. The dinners are exclusive affairs, none but the delegated representatives of the interested firms being permitted to attend.

The association has a short code of rules and regulations drawn up by the Automobile Trade Association, which sets forth the object of the association, defines the limitations upon membership, provides for the exclusion from the meetings of all those not eligible to membership, including representatives of the press, and places limits upon the powers and prerogatives of the organization.

As set forth in the rules and regulations, the primary object of the association is to promote good fellowship and acquaintance among the men engaged in the used car industry, and the activities of the organization are kept strictly confined to this purpose. There are in Chicago in the neighborhood of sixty concerns, independent used car dealers and used car departments of passenger car concerns which are entitled to representation in the association. Up to the present time about thirty-five of these have delegated representatives, but Secretary Beard says the membership soon will be 100 per cent representative of the used car industry.

Its Simple Objects

As a matter of fact the association has no powers in a business way and business matters rarely are discussed, save in a narrative way, at the monthly dinner. One topic which is not taboo, however, is sales methods. There is a friendly exchange of experiences, often illustrated with typical examples and instances, which give the representatives a better insight into competitive methods and which tend to broaden their perspective of the possibilities in the used car business. The prohibition of dealer attendance removes the restraint sometimes imposed by the presence of the "boss" and the men talk freely and unreservedly. The discussions are strictly informal and every man has a right to the expression of his opinion.

This extraordinary association was conceived in the minds of some of the used car men about the time of the used car show last winter. Some things occurred at that time which emphasized the apparent desirability of a better acquaintance and understanding among the used car dealers.

Why it is Successful

A few men got together around a dinner table and discussed the feasibility of an organization. A committee was appointed to canvass the used car managers and feel out the sentiment. Two or three dinners were held before a definite plan of organization was determined upon. Of course, realizing that nothing could be accomplished without the sanction and co-operation of the Automobile Trade Association, nothing was attempted without consultation with officials of that organization. Beard, attended every meeting and gave the used car managers the benefit of his experience as an organization man and also kept them within the bounds of the trades association.

The result of this co-operation was the placing of such limitations upon membership and activities that the new organization could count upon the recognition of the trades association. The present organization was the result.

And it is doing good work. Those honored with membership in the association are enthusiastic about it. It has broken down the barriers which existed in the used car trade because the dealers and managers did not know each other. It has smoothed out some of the asperities of competition. It has brought the men closer together and each has a better conception of the function he is called upon to perform in the motor car trade. It has improved conditions all along the line. Also, with a readily growing membership, it appears destined to still further influence for good with permanent effects on the trade. While it works in an indirect and intangible sort of way the influence of this unique organization is none the less real and beneficial.

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How St. Louis is Adopting War Service.

Although the Plan Has Been Operating Only a Week It Is Working Well Already

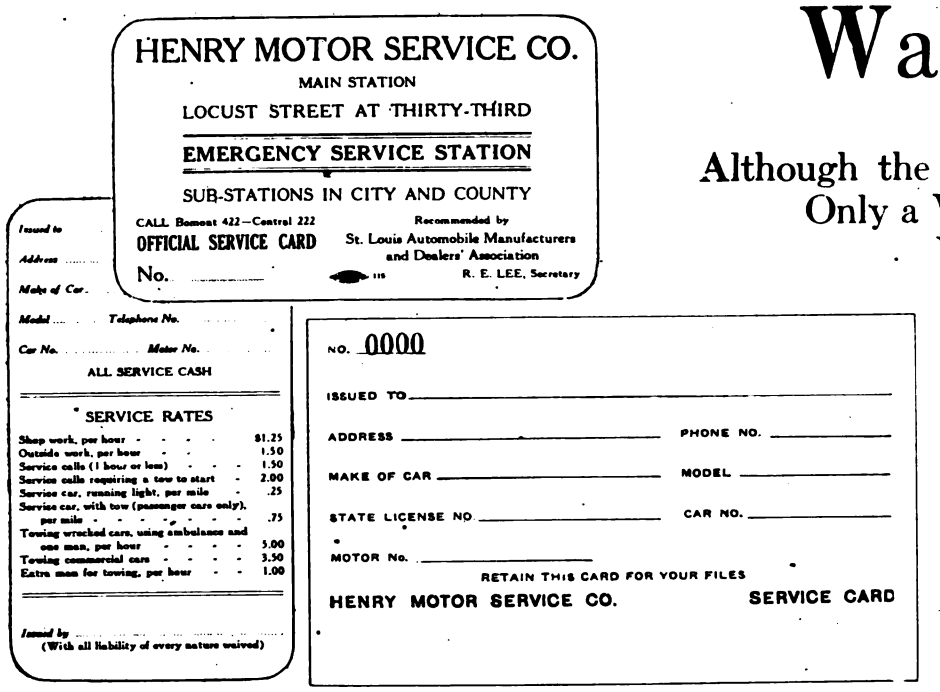


Fig. 1—Above and left are both sides of the card given to each car owner and at the right (Fig. 2) the record card for the office files

ST. LOUIS, June 8—A week ago St. Louis went on a "war service basis" for motor cars. There were many misgivings at that time and the first week started anxiously. At this time the anxiety has changed into interest and in most cases to satisfaction. No one now doubts that the car owner is going to accept the new order of things willingly, outwardly at least, and no one believes now that a serious hardship will be imposed.

Briefly, the plan is that all service shops are closed nights and Sundays. It is estimated that more than 100 mechanics were released. This has imposed no hardship because there were jobs open for every man, if he wanted to work. Some may complain because of the shift, for few on the night and Sunday shifts worked very hard.

The plan accepted and which is being recommended and adopted by other cities is in the main that worked out by W. L. Patterson, secretary and treasurer of the Henry Motor Service Co., which does the night and Sunday work. Patterson worked out this plan with a view that some time motor car agencies would become tired of the unprofitable night and Sunday service and would want some company to take this off their hands. The need came along and has been adopted. The Henry company was ready and is taking care of the job nicely. The idea was there, it was only necessary to get the forms printed and go to work. The Henry company has four stations open at night and on Sunday.

As a first step each service manager makes out a card (Fig. 1) for each customer. This card contains directions for calling up the service stations, data identifying the car and a price list. It says "all service cash." The men who go to the rescue of a motorist carry with them blank checks to be filled out if the car owner lacks the money.

The information placed on this card is also written on two card index cards (Fig. 2), a red one, which the station which issues the card keeps, the other being sent to The Henry Motor Service Co. These cards are different colors to avoid confusion.

The Henry company has a special blank (Fig. 3), on which a record of all calls is kept. On this record goes the customer's number of card, the shop number and time record. This is open to inspection of any service manager whose customers raise any question. When the work is completed a bill (Fig. 4) is made out in triplicate. One for the Henry office file, one for the customer and one attached to the job but retained in the station where the work is done. Finally a special bill is sent to the service station whose customer

SCHLECHT SAYS:

"Be sure and present it as a 'war service plan.' Be sure and make it clear that waste of mechanics must be conserved to win the war. Remind the people that one of these night men might be able to keep the airplane aloft that will smash up Hindenberg's headquarters, perhaps drop a bomb on the Kaiser's palace. Talk these things long and loud.

"The rest is easy. People are not objecting to war necessities. Even if any had objection they would not talk about it, but most of them would blow up their own cars in a minute to win the war or put them in a garage from now until Christmas to help even a little bit to win the war. Make the war talk strong and the battle is 99 per cent won."

SERVICE CALL RECORD

HENRY MOTOR SERVICE COMPANY

3227-29 LOCUST STREET

ST. LOUIS, MO.

For the Customers of

DATE	STATION	CUSTOMER'S CARD NO.	NATURE OF CALL	ELAPSED TIME	CHARGES	

Fig. 3—This is the record blank on which a report of all service calls is made

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had work done. This shows at which Henry station the work is done, nature of the work, the customer's card number, time and the charge. This is sent to the service station manager early in the day after the work is done.

So far the plan had worked beautifully. Of course some objections have been made. President Joseph A. Schlecht, of the Automobile Manufacturers' and Dealers' Association, under whose direction the work is being done, has had several appeals. Two of these are:

A man owning a light car broke an axle in the suburbs. He was charged $6.50 for a tow and appealed. He has been "mooching" his repair work. He was told that he was fortunate, that $10 would have been a fair price.

Foolish Complaints

The owner of a heavy car sent in a frantic appeal to have his oil pump adjusted—"it would not work." The mechanic found the pump all right but no oil to be pumped. He was charged $1.25. He insisted that the company that sold him the car should pay. He was told that the education was worth many times the cost to him and might save his car from serious damage when he was farther from a service station. Also that no company should do such things without charge.

"Such complaints as these," says Schlecht, "can be handled now in a way to make the customer see that he has no just claim. When he was calling on the company that sold him the car he obtained much unjust free service to avoid a row. The Henry company is told "to treat everybody alike, absolutely no favoritism," and it is the judge of what should be free service and its recommendations will be made to the service station that should care for the car.

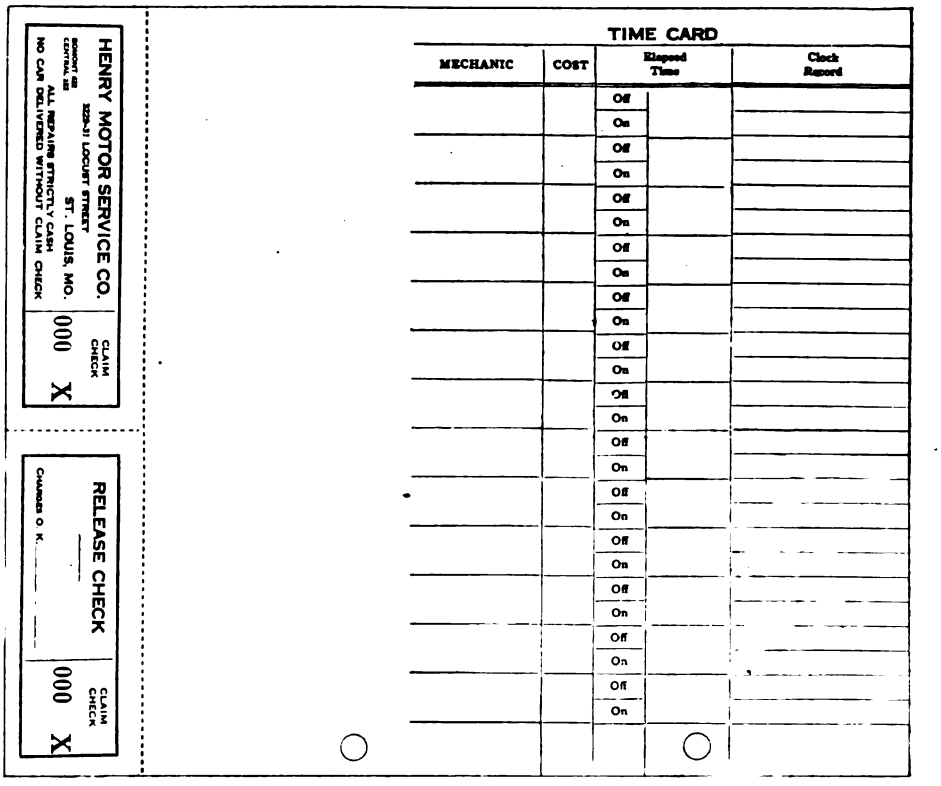


Fig. 4—Back of the repair order card which goes with the car and to which are attached stubs, one for the car owner and the other to be signed by him when the car is released

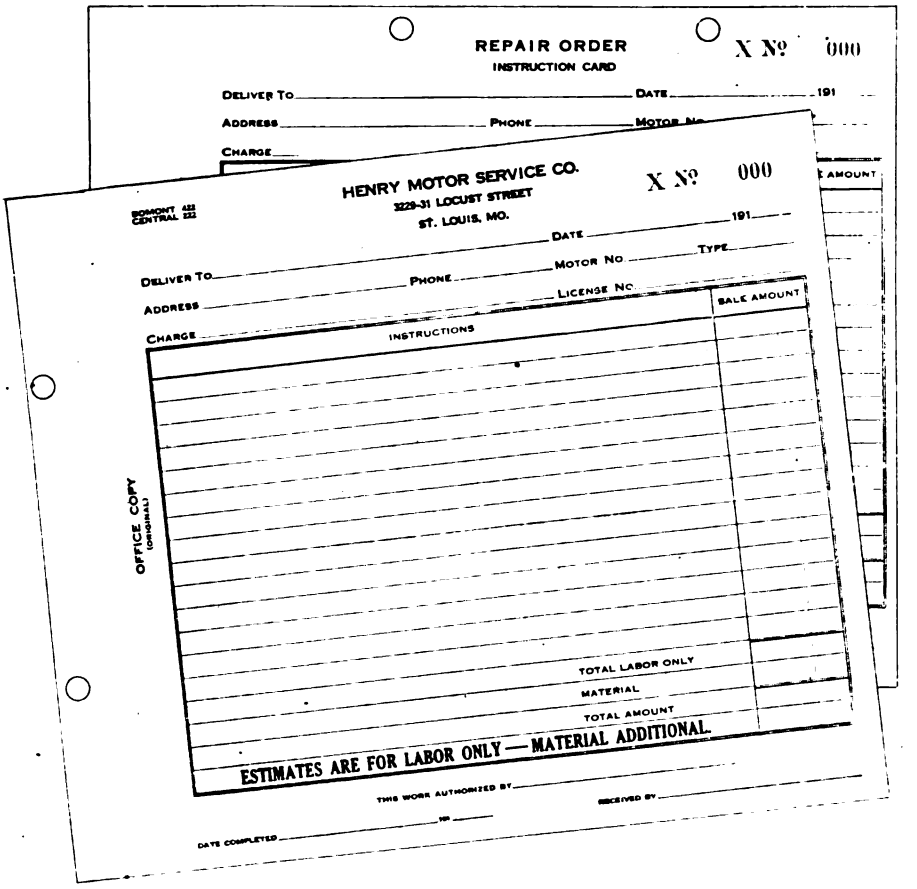


Fig. 4—The repair order card is made out in triplicate, one for filing, one for billing the customer and one for a record of the time put in by the mechanic

"After one week's experience I regard this as the greatest step the St. Louis motor car trade has ever taken. It will lessen the cost of doing business, teach the trade, especially salesmen, to promise less, and will learn car owners many things they should have learned years ago."

L. Chapman, superintendent of service for the Overland Automobile Co. of St. Louis, said:

Benefit Whole Trade

"This is going to benefit the automobile trade in half a dozen different ways. First is the immense saving. Night and Sunday work can never be made profitable. I should say, off hand, that a company that received $1,000 for the work done at night and on Sunday would have a pay-roll of $600 a month. I think this proportion would work out. One man cannot do work alone, so there must be at least two. Light and heat bills for shops at night and on Sunday are immense.

"Second, it is going to educate car owners in what they have a right to expect. The Henry company can tell customers things that we could not. The man who has paid a bill will never be as hard a kicker as the man who is about to pay one. He gets in trouble on the road, pays for the work, thinks it over and knows that he has no claim for a rebate.

"Third, a lot of 'good fellows' who dropped in at night with a pocket full of cigars, or an invitation to 'come and

(*Continued on page* 13)

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Drive-away Bureau

ASK FOR INFORMATION—AND—GIVE US INFORMATION

THIS department will be continued indefinitely. Its aim is to provide a clearing house for information as to routes, road conditions, hotel rates, garage rates, unfair conditions, new routes, etc. Motor World will make an effort to get any information you desire. In return, all dealers are requested to forward promptly any information they have regarding drive-aways. Send your information so it will reach New York not later than Monday of each week.

"Make It Snappy!"

New Regime of Military Precision in Drive-aways

By K. H. Lansing

DELIVERY tours from motor car factories to Philadelphia are increasing steadily because of growing favor in this method of transportation, both as regards the customer and the dealer, and the manner and method of the drive-away, like the motor car itself, are subject to change and improvement. But there is a tendency of late to approach what, for want of a more descriptive term, might be called "standardization" of the mode of bringing a string of cars overland under self-power. That is, widening experience has shown manufacturer, distributer and agent that it pays to observe certain rules, not only "of the road" but also of conducting the caravan.

Not so long ago, in Pennsylvania, as elsewhere, manufacturer and agent were content, at times, to foster the business of the drive-away contractor—usually a shrewd farmer, or "country sport" who, with an eye to the high dollar, always was ready to "try anything once;" and once was just about enough for the party of the second part.

Old-Time "Contractor" Passes

The contractor, in a gambling spirit, would first find out and list all the young men in his vicinity—of course as near as possible to a dealer's center—who could drive anything from a traction engine, or a tractor, to a high-power automobile. He would studiously pick out the country boys and avoid the city "chaps," because he could obtain the services of the yokels at a much lower figure on account of their eagerness for the experience and because they were not so particular about hotel accommodations and railroad transportation to the drive-away point.

The contractor would pick out a hit-or-miss itinerary, make terms with roadhouses and hotels, then with this accumulated information enter into a contract with a manufacturer or dealer, as the case might be. No rule, except that of "get there somehow" was observed on the run in; the constables took their toll of the driving force and the extempore chauffeurs slammed their way through mud, mire and sand roads. Most of the cars usually arrived either in whole or in part, more often in part. The contractor usually was the only one pleased with the transaction.

While a few of these buccaneers may be employed in an emergency, their popularity has waned. Now an almost military precision, with the cantonment watchword, "Make it snappy," is prevailing on drive-aways—at least to Pennsylvania points, Philadelphia in particular.

Strict Discipline on the Road

Among the leading automobile concerns in the Quaker City which observe strict discipline en route from the factory is the Oldsmobile Co. James K. Mogee, service manager at Philadelphia, is known along Automobile Row as an especially efficient and experienced drive-away expert, and what he says along these lines carries weight with the trade.

"The lead-off man of a drive-away," says Mogee, "must have as his prime qualification that of a good business manager. He must act as guide and routing agent; must be thoroughly familiar with the country to be traversed and, as he must house and feed the 'string,' he should be able to make the best of terms with hotels and roadhouses, and this means tact as well as acumen. He must not only know the most advantageous route from point to point, but he must be well informed as to alternate routes, where there are any, in case of mudholes caused by rain along the regular thoroughfare.

"He must be to the caravan all that the advance agent is to the theatrical troupe and then some. He must know his jumps like a book, and all his stops are "one-night stands" except in case of being snow or flood-bound. Of course he must know repairshop and garage locations along all routes where there are any, even if a service car accompanies the 'string.' He must see to it that the proper gait is struck and a certain set speed not exceeded for tire depreciation reasons as well as to keep on the right side of the road authorities.

Good "Lead Off" Man Needed

"A good lead-off man keeps away from the big cities, so far as possible, because city traffic is apt to hold up his 'string.' And where it is necessary to pass through towns, I would emphasize the necessity for going slowly. It is necessary to minimize the danger from collisions. Whenever the lead-off man notices that the rolling stock is keeping uneven intervals, he should slow up and wait until all are in line and the right distance apart.

"Next to the lead-off man in importance, or perhaps equal to him in that respect, is the tail-end man of a drive-away. He is the foreman machinist in charge of the men en route," continues Mogee.

"It is his duty to see that all the cars are kept in first-class shape. He, too, sees that the men obey the rules, and from his vantage point at the rear of the procession, where he always should be, is able to attend to this better than the lead-off man. He keeps close watch on the caravan, both as a unit and individually, sees traffic laws are obeyed and looks after the outfit in such a way that there shall be a minimum of repairs along the way. He gives orders before the start, that if the driver of any car is skeptical as to the way it is performing, or if there are any symptoms of trouble, to leave the line, pull up always to the right and come to a stop until the

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tail-end man can come up and examine the car. He maintains his car there until it is fixed and the journey resumed.

"The extra man—and there always should be an extra man on a delivery tour—acts as the lieutenant to the lead-off man. He checks up the cars at every stopping point, sees that all are supplied with gasoline, lubricating oil and water. He helps to make arrangements for quarters at hotels and notifies garages and repairshops of any contingency where their aid is required. He has a thousand and one errands to do, so that he might be called the 'extra-busy' man.

"Before an Oldsmobile drive-away starts from the factory we go through what is known to us as the 'dolling-up' process. That is, we go very carefully over each machine, see that everything is tight and in place and in good working order, and then we always coat over with body polish, which is easily washed down at the finish of the run. We do not do as some other factories—send out the cars unfinished as to varnish, the final coat to be put on at the end of the route. We have found that body polish is the better way. Then all that is necessary to do at the finish is to wash down, tighten and oil up.

Number of Cars Limited

"We try to make it a rule not to take more than fifteen cars along on a drive-away to Philadelphia. This, we have found, is the maximum number to be handled conveniently and economically. A larger number means, of course, many men to look after, house and feed. With our extra-man scheme, this makes only sixteen men on our drive-away of usual size.

"From Lansing to Philadelphia is 750 miles, and in wet weather the roads as far as Elyria, Ohio, are not of the best. While we have made trips with as many as fifty cars at a time, it has been the exception. For a branch, fifteen cars should be the maximum, while for dealers usually only two or three cars are run at a time. In case of deep snow or mud, however, the smaller drive-aways are apt to suffer in some localities from the greediness of the farmers, who exact the last penny to haul the cars out of their difficulties."

Not only farmers, however, seem to enjoy holding up drive-aways. What Thomas A. Edison recently expressed aptly as "the interference of small, but very officious, officeholders," in a telegram of protest recently sent to the Governor of New Jersey, when he was bothered by them while operating new Ford tractors on his farms at New Village, has been responsible, especially of late, for the stalling of delivery tours in the Pennsylvania district, including New Jersey and parts of Maryland and Delaware.

Overzealous local officials, employing petty technicalities of the various state laws, are stopping caravans and threatening with arrest or fine the drivers, who sometimes have to use extreme diplomacy and cleverness in order to get away. Not infrequently even this fails and the "hold-up" is complete. Sheriffs and constables alike prove pests of the road in this respect. Often magistrates stand in with them.

Where One String Was Caught

A string of sixty cars driven recently from Lansing to New York was halted in York, Pa., because only the first and last cars had license plates. Hereafter license plate provision is going to be made a special point with Philadelphia dealers. The sheriff in this particular instance insisted that every car should have a plate. To take out a Pennsylvania license would have cost $20 for each car, although the train was merely passing through a corner of the state and all the vehicles were being delivered to a single dealer in New York. It was necessary for the dealer to obtain more than fifty duplicates of his New York dealer's license plates at $5 each and ship them to York, Pa., before the drive-away was permitted to proceed. This caused a delay of more than one day and entailed expense of more than $250 for plates alone, to say nothing of added and unexpected expense for housing and feeding the men, the hotel and contingent expenses running up to $750. Hence, it cost more than $1,000 to drive sixty cars just once through the northeast corner of Pennsylvania.

In another instance, a string of more than thirty motor cars was stalled at Wilmington, Del., and the chauffeurs threatened with arrest because they did not, of course, have state operators' licenses. The cars in this case were being driven from New York to a dealer in Norfolk, Va.

Police Sometimes Officious

Neither New York nor Virginia requires such licenses and the Norfolk dealer contended that it was unfair and unnecessary to insist that the drivers of cars simply passing through a corner of Delaware on a single business trip take out licenses to operate for a year in that State. The police in Frederick, Md., objected, also, because some of the cars had the dealer's license number merely stenciled on pasteboard instead of the approved metal plates. In Virginia, only six or eight duplicates of the dealer's license plate are issued to a single dealer, who is allowed to make temporary duplicates himself, but the authorities in Maryland threatened him with a fine for this.

The annoyance and expense involved are due to a lack of uniformity in state laws, and this doubtless will be the subject of a determined "drive" in the not distant future by manufacturers backed by dealers in concert.

Among the proofs that the drive-away is increasing in popularity are the facts that more than 12 per cent of the Packard Motor Car Co.'s motor carriages and 21 per cent of its truck deliveries to branches and dealers since Dec. 1 have been made by the drive-through method; and that the advance squad of Peerless cars for spring business in Philadelphia and vicinity, 400 in number, came overland under self-propulsion from the factory in Cleveland.

Baltimore

BALTIMORE, June 8—While some Baltimore dealers drove sufficient cars during the winter and early spring months to take care of their needs for the season a number of other Baltimore and Maryland dealers figured in drive-aways during the past week and will continue to drive both passenger cars and trucks throughout the season. Drive-aways will be continued by those Baltimore dealers and distributers as long as it is possible for them to get machines.

Among the firms driving are the Zell Motor Car Co. (Peerless and Chalmers); United Auto Sales Co. (Studebaker cars and trucks and Garford trucks); Eastwick Motor Co. (Dodge); Schall-Crouch Auto Co. (Paige and Atterbury); Sietz Auto Co. (Velie and Service trucks); Franklin Motor Co. (Franklin); Chevrolet Motor Co. (Chevrolet); and the following Ford dealers: Backus Motor Co., Hosbach Motor Co., Wilcox-Brown Motor Co. and West End Service Station.

Not a complaint was made by the drive-away managers against hotel or garage charges. Most of the Baltimore firms have been able to obtain the service of some of their customers in bringing down cars, thus saving the wages of the drivers and having the use of them at home.

Dealers Using Boats

Several Baltimore dealers have their machines shipped by boat from Detroit to Cleveland.

Cleveland to Baltimore, via Pittsburgh, road good except between East Palestine and Beaver Falls. From Pittsburgh to Uniontown to Hagerstown and down the Maryland state roads, via Frederick.

Syracuse to Baltimore—Syracuse to Ithaca to Watkins to Elmira to Williamsport to Sunbury. It has been necessary to make a detour by way of Milton recently, thence to Harrisburg to Gettysburg to Emmittsburg to Frederick and down the Maryland state roads. Most of the Pennsylvania roads are dirt, but the New York roads are stone and Maryland roads are in good shape, except for a few bad places.

Tarrytown to Baltimore—Down the stone road to Yonkers to New York City, across Forty-second Street ferry to Weehawken then down the Hudson Boulevard through Newark, Elizabeth, Rahway, New Brunswick, Trenton to Philadelphia, thence to Wilmingon.

From the time one leaves this point until the Delaware state line is reached the road, which is dirt, is in terrible condition. Drivers who have been driving over that section for several years say nothing has been done to fix the holes that have been torn in them and it is impossible for safety sake to make better than 10 miles an hour on this stretch. The Maryland state roads are in fairly good shape, except for a few bad holes around Belair, which are expected to be put in repair shortly.

Buffalo to Baltimore—After leaving go by way of Batavia to Corning, Pa., to Sunbury, Pa., to Harrisburg to Gettysburg to Westminster. From Harrisburg to Westminster the National pike used

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Drive-away of Oldsmobiles from the Olds Motor Works, Lansing, Mich., en route to Philadelphia. One of the large spring caravans not under the 15-car plan

and the roads are in good shape all the way into Baltimore.

Lima, O., to Baltimore—Lima to Canton to Darlington to Pittsburgh and then by way of Fort Loudon to Hagerstown and down the Maryland state roads.

Chevrolet drove in 54 cars for themselves and dealers in this territory and will take as many as the factory will permit. Ford dealers are driving them in dozen lots. Paige brought in 20 and Dodge is bringing in anywhere from 6 to 12 and 15 at a time.

Many dealers have been able to get their cars by railroad, the Lambert Auto Co. having been able to get shipments in right along. Chalmers are being shipped to Jersey City, Newark, N. J., and Harrisburg, Pa., and also to Arlington, Md., and the drive-aways have been short.—Charles B. Weiss, Motor World representative.

Albany

ALBANY, N. Y., June 8—Albany dealers are not driving cars from the factories in great numbers, and some have discontinued the practice with improved traffic conditions. The city is the stopping point, however, for great drives to New York. Most of the cars come from Cleveland and points farther west and come by boat to Buffalo; the shore road is then taken through Erie, Pa., where road conditions are reported bad; then along the lower road through Canandaigua, avoiding Rochester and following the line of the barge canal through Syracuse, Utica, Schenectady and Albany. The dealers now driving cars are: Franklin Motor Car Co. (Franklin); Oldsmobile of Albany (Oldsmobile); Overland-Willys, Inc. (Overland); Wescott Burlingame (Cadillac); Buick Motor Car Agency (Buick); Tri-City Motor Co. (Chandler).

Peoria, Ill.

PEORIA, ILL., June 8—C. A. Porter is Peoria's drive-away demon. Since early spring he has received most of his cars through the drive-away system and has not depended upon the railroads.

Several times he was forced to secure a number of women to drive cars for him from Detroit to Peoria. He declares that the hotel men appear to be very anxious for patronage and city and state authorities realize that the drive-away system is a patriotic measure and do not interfere with them.

Garage men are also very reasonable and in many cases offered the men goods at cheaper prices than quoted to the public. The route from Detroit to Peoria follows:

Detroit, out Michigan Avenue, to Wayne, Ypsilanti, Ann Arbor, Jackson, Battle Creek, Kalamazoo, St. Joe (201 miles covered in 7 hr.), Michigan City, Valparaiso, Dyer, Chicago Heights, Joliet, Ottawa, La Salle, Bureau, Henry, Chillicothe and Peoria (a total of 478 miles). On the last lap Porter started at 7 a. m. and completed at 7 p. m., including 2 hours for lunch.

This route is fine in wet or dry weather with the exception of the stretch from Joliet to Peoria. In dry weather this is O.K., while in wet weather he goes to Aurora, Princeton, LaSalle, Henry, Chillicothe and Peoria.

Rochester

ROCHESTER, June 8—It is safe to say that no motor cars are now being brought into Rochester other than by drive-aways, conducted either wholly or in part by the distributer. The fact that Rochester is situated so near to a lake port has relieved the strain here greatly since navigation opened, as many of the factories are now shipping their cars to Buffalo by lake boats and dealers are driving them from that port to all poins east. The General Motors Co. has chartered a fleet of steamers on which all Dort, Oldsmobile, Cadillac, Oakland, Buick and Scripps-Booth cars are being brought to Buffalo. There are, however, a number of Rochester distributers who are still making straight factory drive-aways. These firms are:

Alling & Miles (Hudson); Moline-Knight Sales Co. (Moline-Knight); Overland-Rochester Co. (Overland); Peck & Arnold (Studebaker).

Firms which are obtaining their cars by lake carrier and are driving from Buffalo are:

Mabbett-Bettys Co. (Cadillac); Clark Auto Co. (Nash); George W. Henner (Oldsmobile and Dort); Frank P. Hunt (G. M. C. trucks); William P. Knipper (Saxon); Thomas J. Northway (Reo and Maxwell); E. J. Ellis & Co. (Packard and Dodge); George W. Stafford Co. (Cole); Strong Motors Co. (Chalmers); H. J. Sturtevant & Co. (Pierce-Arrow); C. L. Whiting (Buick).

All Ford cars, which are handled in Rochester by four distributers, the Mandery Motor Car Co., Ball-Washburne Co., Wagner Motor Car Co., and the Genesee Motor Vehicle Co., are assembled in Buffalo and driven by the dealer to this city. The Buffalo assembling station also supplies a part of the Philadelphia and Boston territory and many cars bound for these points pass through Rochester daily. Franklins are of course driven in from the factory at Syracuse.

The principal routes which are being followed by Rochester dealers making factory drive-aways are:

Moline-Knight Sales Co.—From the factory at Moline, Ill., to Chicago, to South Bend, Ind., to Cleveland, by boat to Buffalo to avoid bad roads, and from Buffalo to Rochester. The following information regarding this route was furnished by Herbert C. Kelly, secretary of the firm, who recently made the trip with a string of cars: "I would advise all following this route to go from South Bend to Toledo instead of going straight to Cleveland, as there is less chance of getting off the track in this manner. Also to keep to the Lincoln Highway wherever practical. Where we did this we had no more trouble than when driving in our home town."

Peck & Arnold (Studebaker)—From factory at South Bend, Ind., to Toledo, to Cleveland, to Buffalo, to Rochester. Report some parts of road in bad condition and no traffic troubles, as they furnished a pair of licenses for each car.

Overland-Rochester Co.—Driving fifteen to twenty cars a week from Toledo to Rochester, and have not yet made the detour by boat from Cleveland to Buffalo. No traffic troubles reported.

There are, however, many cases reported where Rochester distributers are being held up and fined while making drive-aways. Thomas J. Northway,

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Rochester distributer of Reo and Maxwell cars, recently brought down a string of ten cars. He had no difficulty until he reached Buffalo, but no sooner had the cars reached that city than his men were arrested by a traffic officer for driving with only one license plate on a car. The drivers were detained at the station house and finally compelled to leave one of the cars for bail until the fine had been paid. Mr. Northway claims that applications had been placed for licenses but that he had been unable to obtain them. It is said that the Buffalo manager of the State License Bureau is very unreasonable in these matters.

The Mandery Motor Car Co. recently brought a string of Fords from the assembling plant at Buffalo and was held up by State Troopers in Batavia for the same offense. Drivers were fined.

There is no reason to believe that there will be much change in these conditions for some time, except that until the lake season is ended more and more distributers will continue to take advantage of the facilities for delivery offered by the lake steamers. If enough barges are provided for use on the barge canal it may be possible that the cars will be delivered to the city in this manner and thus eliminate all drive-away. The only prospect for a great change is that later in the season the lake boats may all be taken over by the government to carry the wheat and grain crop and thus force the distributers to the factory drive-away again.

Chicago

CHICAGO, June 8—Not a day passes but one or more drive-aways of passenger cars from the motor car factories of Michigan and Ohio reach Chicago. So thoroughly established has the custom become that it is regarded as a regular part of the business and excites neither surprise nor comment. Many of the motor car companies maintain regular crews of drivers and make regular schedule trips. In some factories traffic managers have been appointed to take charge of this work and drive-aways move with more regularity and precision than it would be possible to obtain from rail transportation.

Practically all the kinks and difficulties experienced by the first drive-aways have been removed. Roads have been improved here and there, town and village restrictions on motor car traffic have been compromised, over-charging garagemen have been led to see the error of their ways, hotels are recognizing the value and importance of the drive-away trade and welcome it, and the whole traffic has been brought to a conventional and uneventful basis.

Two well-established routes are followed from points in Michigan to Chicago. One is known as the Northern Route, is better piked than the other, and is the more satisfactory and surer route in winter. The other is known as the Chicago Trail Route, and runs through southern Michigan and northern Indiana. This is the favorite route in summer, and is much the more picturesque, as in its Michigan stretch it runs through the southern Michigan lake district.

The northern route from Flint, Mich., to Chicago runs from Flint to Owosso, Perry, Williamston, Lansing, Charlotte, Bellevue, Battle Creek, Kalamazoo, Paw Paw, Lawrence, Hartford, Watervliet, Coloma, Benton Harbor, St. Joseph, Bridgman, Galena, Three Oaks, New Buffalo, Mich., Michigan City, Ind., Gary, South Gary via Ridge Road, Tolleston, north edge of Hammond on St. Joe Pike, Lake George Road to Indianapolis Avenue, South Chicago, Lincoln Highway through Jackson Park into Chicago.

This route is marked at present by signs, "Buick Route to Chicago," and soon will be indicated also by Reo signs which are being prepared. For the most part it is good in all seasons of the year, although there is a sandy and rough stretch between Kalamazoo and Paw Paw. Some complaint has been made about overcharges at a garage in Paw Paw, but the chances are that this will be corrected in the very near future. Drive-aways and tourists are advised to keep away from Battle Creek as a stopping place for the night because of the chronic congestion there owing to the proximity of the United States cantonment.

The Chicago Trail Route is defined as follows: Flint, Mich., Fenton, Highland, New Hudson, Whitemore Lake, Ann Arbor, Salina, Clinton, Cement City, Somerset, Somerset Center, Moscow, Jonesville, Quincy, Coldwater, Kinderhook, Mich., Orland, Ind., Howe, Shipshewana, Middlebury, Elkhart, Osceola, Mishawaka, South Bend, New Carlisle, Laporte, Pinola, Burdick, Chesterton, Porter, Gary, into Chicago by the route already indicated.

From Laporte there is an alternative route which some prefer. This is from Laporte to Valparaiso via Westville, from Valparaiso to Hobart and into the Ridge Road and thence into Chicago via South Gary and the route previously given.

During the summer this Chicago trail is a beautiful route and has few, if any, disadvantages. Early in the drive-away period a good deal of trouble and annoyance was experienced at South Bend, but this has been corrected and the best of treatment may be expected there.

Wilmington

WILMINGTON, DEL., June 10—Nearly all of the larger dealers in Wilmington—as well as in other parts of Delaware—are driving their cars from the factories or from transfer points to which they are driven or delivered by boat for them. The following Wilmington dealers are making a practice of driving in the cars:

F. B. Norman & Co. (Ford), French Street Garage (Reo), Cahill & Co. (Dodge), Gomery-Schwartz Motor Car Co. (Hudson), Delaware Motor Sales Co. (Cadillac), Sweeten-Wilmington Co. (Hupmobile), Taylor Motor Car Co. (Haynes), Packard Motor Car Co. (Packard). Dealers in other parts of the state cover the same routes as those from Wilmington, finding it convenient to come through or near Wilmington in getting to their destination.

Routes to Wilmington

Detroit to Wilmington—To Monroe, Bellevue, Norwalk, Oberlin, Toledo, Elyria, Pittsburgh, Dorchester, Pa., thence over the Lincoln Highway to York, Gettysburg, Bedford, Coatesville, Downington, West Chester, Pa., thence to Wilmington. The roads are good in the main, though in a number of places a hold-up game is practised the hotelkeeper sizing up his victim, according to appearance, and charging all the way from $1.50 to $3. Garage rates vary from 50 to 75 cents per car.

Buffalo (to which point some of the cars are shipped by boat) to Wilmington—To Batavia, Mt. Morris, Dansville, Wayland, Bath, Penny Post, Lawrenceville, Mansfield, Rossburg, Libertyville, Williamsport, Sunbury, Harrisburg, Lancaster, Downington and West Chester to Wilmington. The roads are good, with the exception of about 150 miles of dirt road, which is dusty in dry weather and muddy in wet weather.

The hotels in some of the New York towns charge exorbitant rates, appearing to have no fixed schedule, ranging all the way from $1 to $3. On this route, which consumed 17 hours of running time, the night stop is usually made at Williamsport, Pa., where good hotel accommodations can be had at reasonable prices and there is now a uniform garage charge of 50 cents. At first the rates varied, running up as high as $1, but competition has brought the charge down to 50 cents.

Columbus, O., to Wilmington—To Zanesville, Wheeling, Little Washington, Uniontown, Hagerstown, Washington, Baltimore and Wilmington. There are good hard roads and the hotel and garage charges are satisfactory.

Lansing, Mich., to Wilmington—To Nason, Leslie, Jackson, Manchester, Tecumseh, Litchfield, all in Michigan; Sylvestar, Geneva, Woodville, Clyde, Bellevue, Norwalk, Oberlin, Elyria, Ridgeville, thence along Lake Erie to Cleveland, through Bedford, Hudson, Ravenna, Palmyra, North Jackson, Augustine, O., Darlington, Beaver Falls, Pittsburgh, Chambersburg, Gettysburg, York, Lancaster and Coatesville, Pa., to Wilmington. The roads are good and hotel rates reasonable, while the garage charges range from 50 cents to $1.

In some of the small towns in all of the above routes the authorities kick when all of the cars do not carry license tags, while one local dealer has so far paid $25 in fines on this account. Otherwise the drivers are not molested.—A. O. H. GRIER, Motor World Representative.

New York

NEW YORK, June 8—With the arrival of warm weather drive-away conditions have improved considerably, but the attitude of dealers here toward the drive-away problem varies. Some dealers are getting all the cars they need by freight and others are still continuing to drive their cars overland.

Studebaker, for example, is still driving in 90 per cent of the cars needed. These are shipped from Detroit to Buffalo by boat, and then are driven to New York either by way of Albany or Binghamton and Elmira. A regular crew is at work, and will continue driving the cars in from Buffalo throughout the summer.

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Cadillac is also driving in from 25 to 50 per cent of its cars from Buffalo. The exact number varies with freight conditions. Although the route via Binghamton is 75 miles shorter than the Albany road, practically all the cars have come over the latter. The only bad part of this road is a short stretch near Tarrytown.

Buick and Oldsmobile are following the same plan of shipping about half of their cars to Buffalo and then driving them in via Albany. Both companies find road conditions excellent, and will continue driving a large percentage of their cars in throughout the summer.

On the other hand, the Overland, Maxwell and Dodge Brothers distributers are getting all the cars they need by freight and have discontinued driving cars in. This has been the case with all three companies for about a month, and all report that as long as cars can be brought in by freight they will not revert to drive-aways. The Franklin distributer is also getting all the cars he needs by freight, as the factory is in Syracuse, and there is plenty of room in freight cars for short hauls.

Denver

DENVER, June 8—The drive-away plan has been used scarcely any thus far this year by Denver distributers for bringing cars from factories. The two main reasons given are: (1) That railroad conditions have not yet seriously demanded the drive-away, and (2) that highway conditions in the Middle West are too unfavorable this early in the year.

Shipment reports indicate that the railroads are having far less difficulty at present in moving freight from Chicago, Indianapolis, Moline, Minneapolis and other points in that zone to Denver than they are between factories and large distributing centers in the East. Besides, leading distributers here have been making a practice of storing heavily for the last year or more, as a precaution against freight emergencies.

The largest drive-away enterprise reported to the Motor World representative here was a recent fleet of 28 Buicks driven from Flint to Denver and nearby points by the MacFarland Auto Co., Buick distributer for Colorado and Wyoming.

Sales Manager W. J. Haughey states that road and weather conditions ran the expense of this trip up to $168 a car, without counting the time of the men on the drive.

In spite of the utmost care several of the cars were so badly scratched and otherwise marred by the severe travel through hundreds of miles of deep and heavy mud that they required considerable revarnishing. So Haughey's verdict is that the trip didn't pay.

The route followed was the regular "Buick route" from Flint to Chicago via Lansing, Charlotte, Battle Creek, Kalamazoo, etc., and on from Chicago to Denver over the Lincoln Highway through Cedar Rapids, Omaha, North Platte, etc. Some of the fleet of cars branched off near the Nebraska-Colorado state line for Wyoming points, while the others came on into Denver and nearby Colorado towns.

Arrangements have now been completed by the MacFarland Auto Co. to get its supply of cars shipped mainly from the assembling branch at Minneapolis.

The drive-away has been used extensively between Denver and points out in the Rocky Mountain territory, and has won a great deal of favor. Distributers and dealers are also ambitious to see the plan operated successfully on the larger scale of factory-to-Denver driving. Some of them insist that the importance of motor transportation will bring about sufficient building of permanent highways for all-year use to make the drive-away practical and popular on a transcontinental basis before many years.

San Francisco

SAN FRANCISCO, June 10—While deeply interested in the drive-away idea, San Francisco's dealers are not in position, due to geographical location, to take advantage of the plan.

To drive cars from the manufacturing centers to the Pacific Coast would mean a journey for the round trip of from 4000 to 5000 miles as well as at least three weeks' work away from the dealer's establishment.

The plan of driving cars from San Francisco to interior towns has been used for some time by out-of-town dealers.

San Francisco, acting as the main distributing center of Northern California, distributes its cars to Sacramento, Stockton and Fresno, the dealers in those cities then parcelling out to their sub-dealers in the smaller towns.

Water transportation between San Francisco, Sacramento and Stockton makes drive-aways between those points unnecessary, but they are on the increase as regards Fresno.

San Francisco to Fresno, automobile ferry boat to Oakland, thence along paved State Highway, a distance of a trifle more than 200 miles. The route is through Manteca, Modesto, Turlock, Merced and Madera and an overnight stop is usually made at Modesto, where hotel and garage accommodations are of the best.

Memphis

MEMPHIS, June 8—Chief drive-away dealers in Memphis are the Oldsmobile, Union Motor Co., Lilly Carriage Co., Ford Automobile Co., Maxwell, Buick, Winton, Overland and Chevrolet.

Routes across Tennessee eastward from Memphis are the Bristol to Memphis Highway, via Brownsville, Jackson, Huntingdon, Camden, Nashville and Eastward. Routes have been laid out St. Louis to Savannah, Tenn., via Paducah, Ky., Paris, Tenn., McKenzie, Tenn. There is a route north and south of Paducah, Ky., to Memphis, via Dyersburg, Covington, Union City, etc., and the Grey Hound Route, via Paducah, Ky., to Murray, Ky., Paris, Tenn., McKenzie, Tenn., Bradford, Tenn., Alamo, Tenn., Brownsville, Tenn., Stanton, Tenn., Memphis. No special hotels but good inns and taverns at all these points and attractive country; most of the routes marked and well graded.

19,000 Liberty Engines by Sept. 1

WASHINGTON, June 10—Nineteen thousand Liberty engines will have been delivered to the government by Sept. 1, 1919, according to the members of the Senate Committee in charge of the Senate investigation into aircraft production, who were in Detroit this past week. The Senators, upon their return here, refused to go into a detailed account of the results of their journey. They prefer to tell the complete story in the report which will be issued in the near future.

St. Louis War Service

(*Continued from page 8*)

get a drink' are going to pay real money. Every service manager knows about these fellows. The boys in the shop figure 'we are not doing anything anyway,' so they do his work. He will wait if a real customer comes in, so work that should come in daytime and be paid for is done for nothing.

"There is hardly a service shop in the country that does not wash recently sold cars when they come in, especially at night. The Henry company will not.

"Fourth, service departments will attain the dignity they should have. The automobile business is the only business I ever heard of where the seller of the article bows to the disgruntled customer. True, the maker will supply a defective part, but the seller must put it on and the labor and overhead is far greater than the cost of the part. Our selling departments have been anxious to please. We have been anxious to help. So we have become 'customers' servant departments.' We bow and scrape to the man who talks like he might get sore. Now he is going to be educated.

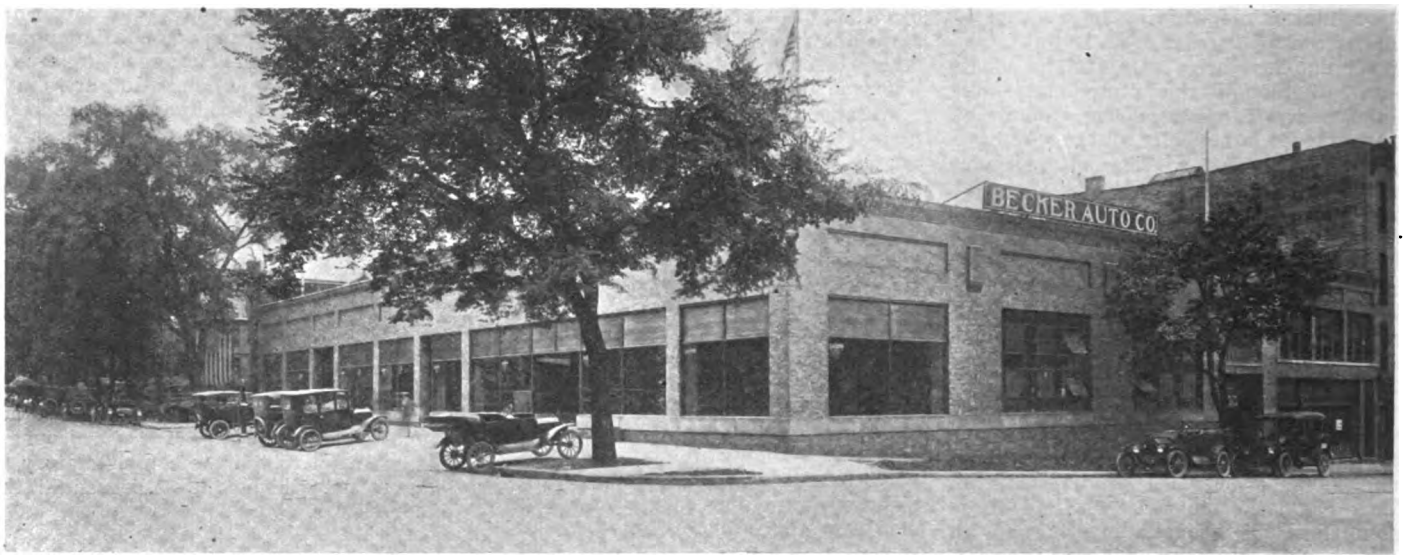
"Another result soon will be better service and perhaps cheaper service, for cost bills now are arranged in an effort to cover the service that is given free, unjustly so. We are willing to shoulder all that should be given free, but the rest of it must be covered some way."

This tells how St. Louis feels about it. Reports have reached the National Automobile Dealers' Association, which is promoting the "war service plan," that a similar arrangement is effective or soon will be in Denver, Des Moines, Louisville, Cleveland, Philadelphia, Boston, Los Angeles, Minneapolis and Atlanta.

W. L. Patterson, who has given more thought to details of this plan than probably any other man, says: "The thing is right. And after a week's trial I am convinced that I can put it over anywhere. If there are doubters and they want to hear from me, I will answer their call."

Messrs. Schlecht and Chapman agree on their views, and they both gave one bit of advice to any organization about to introduce the plan.

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The Becker company sells Studebakers and Saxons and has an altogether model place of business both from the point of view of appearance and arrangement

Linking Simplicity and System

How Becker Keeps Track of Everything without Being Swamped by Detail

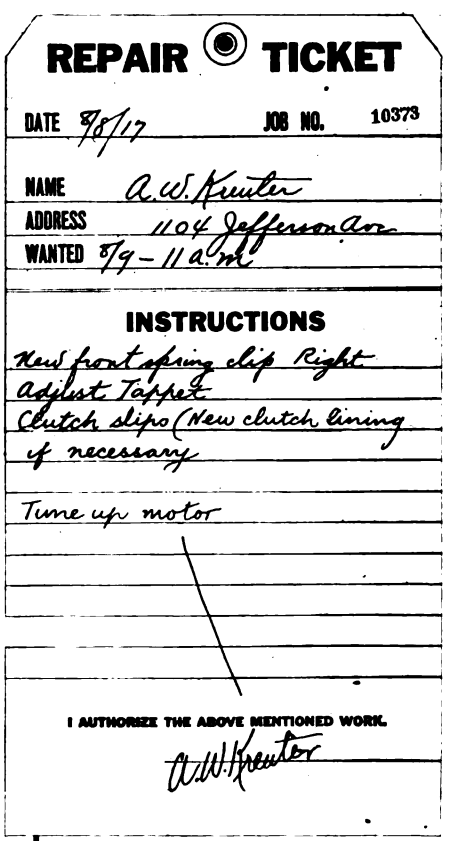
SIMPLICITY is the basic principle of all good shop system. Yet combined with this simplicity must be the ability to check each item for accuracy—the provision of complete data, even though any one step be lost—and the power to trace back every step the job has taken through the shop, either after completion, or at any future date.

Such a system is in use by the Becker Auto Co., Grand Rapids, Mich. For five years it has remained essentially the same, though here and there steps have been eliminated or added as experience proved necessary. It is a system that has stood the test of time.

The first step taken was to divide the service department into five sub-departments, each independent, and each responsible for the work of its department. These sub-departments are: repairshop, stockroom, inspection, accounting and service manager's office.

The duties of the repairshop are definite, as are those of each of the other departments. All the repairshop has to do is to follow the work instructions, obtain the necessary parts from the stockroom, and turn a record of the workman's time in to the accounting department.

All parts and supplies are issued from the stockroom, and it is its duty to see



REPAIR TICKET

DATE 5/8/17 JOB NO. 10373

NAME A. W. Kreuter

ADDRESS 1104 Jefferson Ave.

WANTED 5/9 - 11 a.m.

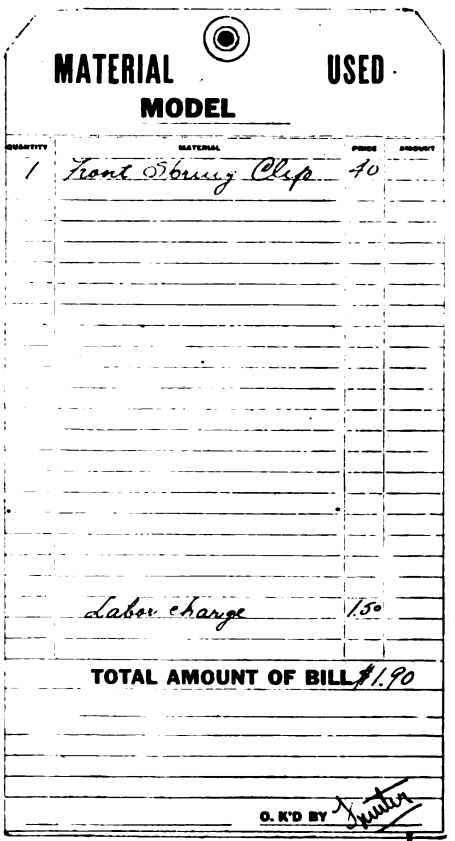
INSTRUCTIONS

New front spring clip Right
Adjust Tappet
Clutch slips (New clutch lining if necessary
Tune up motor

I AUTHORIZE THE ABOVE MENTIONED WORK.

A. W. Kreuter

1



MATERIAL USED

MODEL

QUANTITY	MATERIAL	PRICE	AMOUNT
1	Front Spring Clip	40	
	Labor charge	150	

TOTAL AMOUNT OF BILL $1.90

O. K'D BY A. Kreuter

2

Fig. 1—The instruction card is filled out by the inspector and signed by the owner. Then the car is sent to the rapairshop. Fig. 2—On the reverse side of the instruction card is the "material used" form. All parts are entered here by the stock keeper. When the work is done, the inspector O. K.s the car, and the final bill is placed upon it

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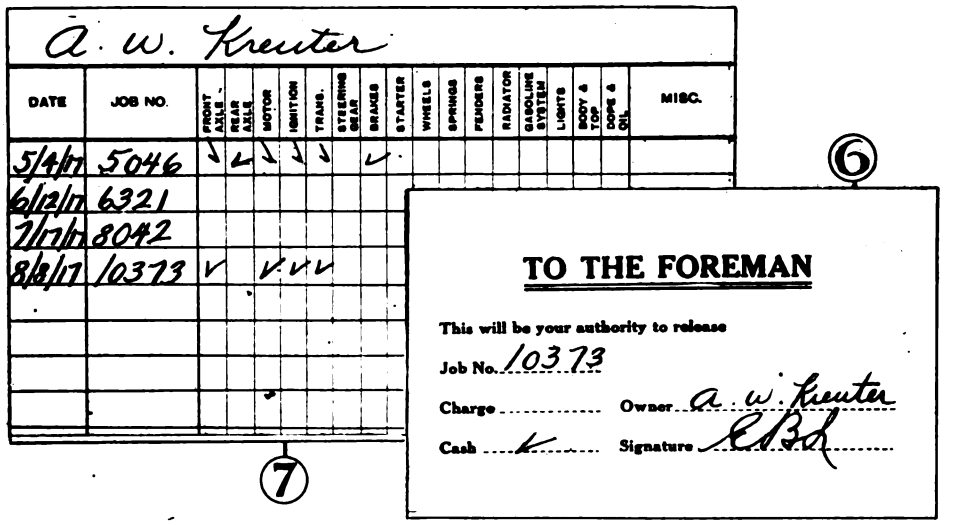


Fig. 6—The owner cannot obtain his car until he has either paid his bill or convinced the accounting department that his credit is good. Thus the accounting department is made responsible for all credits. Fig. 7—A summary of all work done on every owner's car is kept on the above card. These are kept in a card index case

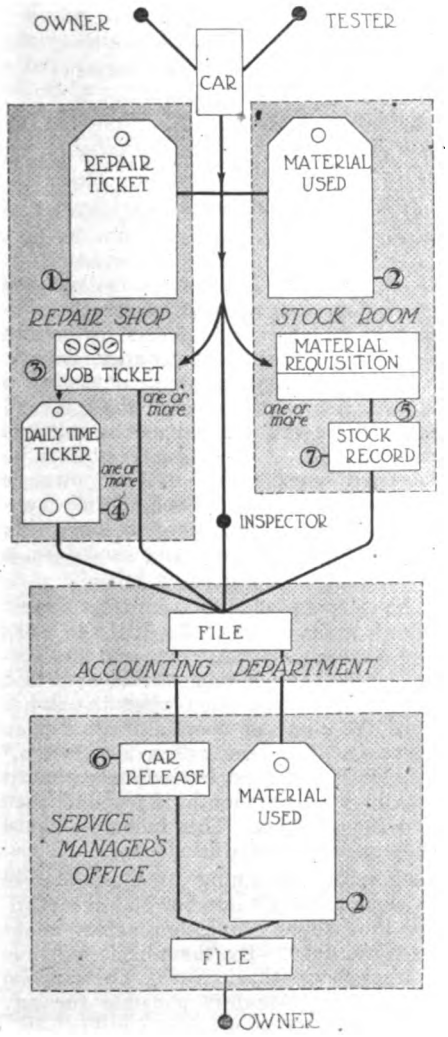


Fig. 8—This chart shows the divisions of the service department and explains the use of the forms in each department. Note that though the record is made in duplicate, in no part do the forms overlap or interfere with each other. And the service manager can trace back through each step with ease

that proper entries are made on the work cards, and sent to the accounting department. The stockman is simply a storekeeper, with the single duty of seeing that a sufficient supply of parts is on hand for all emergencies and that proper entry is made of their delivery to the repair department.

In order to provide impersonal judgment of the work done, a separate subdepartment—the inspection department—is provided. Each car is tested after the completion of the work, and the inspector either approves the work, or sends the car back to the repairshop. This department is not concerned with time or materials. It answers he question "is the work done right, as directed by the owner?" and checks up the work of the repairshop.

All shop and stockroom records are sent to the accounting department, and the detail work of preparing the statement is done. This department checks through all the time cards and material requisitions, and handles the money end of the service work. This department, and this department alone, can issue a release permitting the owner to take his car.

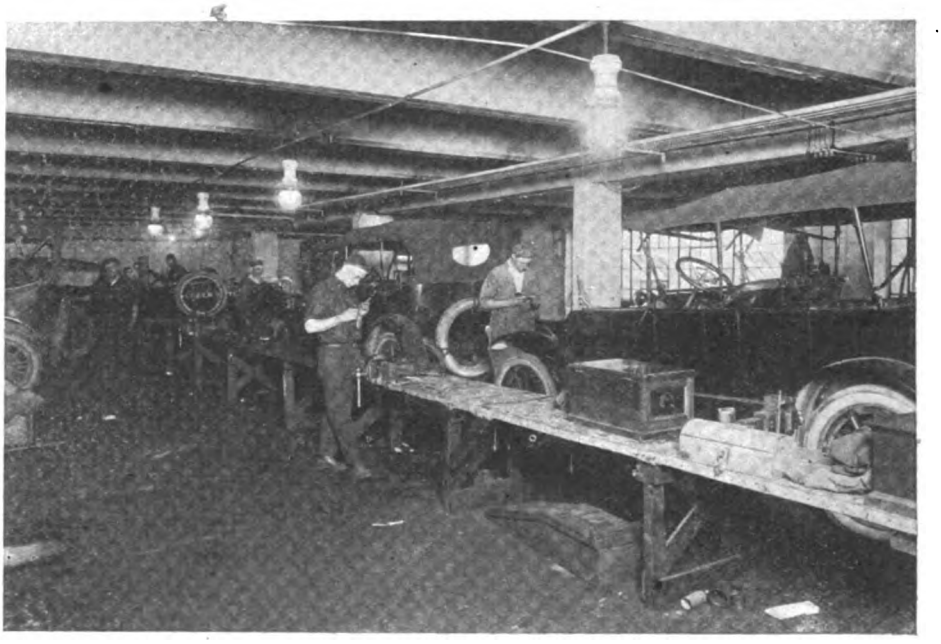
In the main, the duties of the service manager's office are those of supervision and record. This office is the point of contact between the owner and the service station. Here all jobs are started, followed through the shop, and when finished, a complete record made of their passage. It is its duty to see that the owner is satisfied in the quickest possible time—*and is kept satisfied.*

Though only seven forms or cards are used in the system complete data is supplied to each department and a complete record is always available. These forms together with their use are best explained by following a car through the departments as some typical service job is done.

On coming into the service station the owner is met by an inspector. The two confer and agree upon the work that is to be done. The repair ticket, Fig. 1, is obtained, and the work to be done noted and signed by the owner. A promise is made on the job; the owner leaves, and the car goes to the repairshop.

Here the foreman reads the insruction ticket, and assigns the car to the departmen and workman that is to do the work. If rear axle work is necessary the car goes to the rear axle department; if engine work, to the engine department, and so on through the main units of the car. If work from several departments is required the car is sent to that department having the least work on hand at the time.

Immediately on starting any part of the work, the workman stamps the time on the job ticket shown in Fig. 3. When that part of the work is done, the workman stamps out on the time clock, checks his work from the repair ticket, and



In the repairshop of the Becker company the cars are run right alongside the benches. One bench and one lighting system serves all repair stalls, and the mechanics have the maximum room to work

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enters the time on his daily time ticket. The job ticket is sent to the accounting department, and the daily time ticket follows at the end of the day.

If any material or parts are needed by any of the workmen a material requisition, Fig. 5, is made out and presented to the stockroom together with the instruction card. The stockman obtains the desired parts, enters the items in the "material used" column on the reverse side of the instruction card and sends the material requisition to the accounting department. Before doing this, however, he checks the part from his perpetual inventory for his own records.

When the job is completed the car is turned over to the final inspector with the instruction card. Here the car is tested and if all the work desired is done the job is approved. If not the car goes back to the shop for more work. When final approval of the work has been obtained the car goes to the delivery floor and the instruction card is sent to the accounting department.

All cards are now in the accounting department and, as each bears the serial number of the job, are filed until the receipt of the instruction card shows that the work is completed. These cards are then checked to see that nothing has been omitted or entered incorrectly and the total amount of the bill is placed on the back of instruction card.

In doing this work the material requisitions are checked up with the "material used" column on the instruction card. The job tickets and workman's daily time tickets are compared and the cost entered on the instruction card. Addition of the material and labor costs give the total bill.

It will be seen that two checks are provided for both labor and material. The labor charges may be taken either from the job ticket or from the daily time ticket, and the material bill may be taken either from the material requisitions or from the reverse side of the instruction ticket. This is a valuable feature, as it obviates the possibility of loss through mistakes or loss of any of the cards.

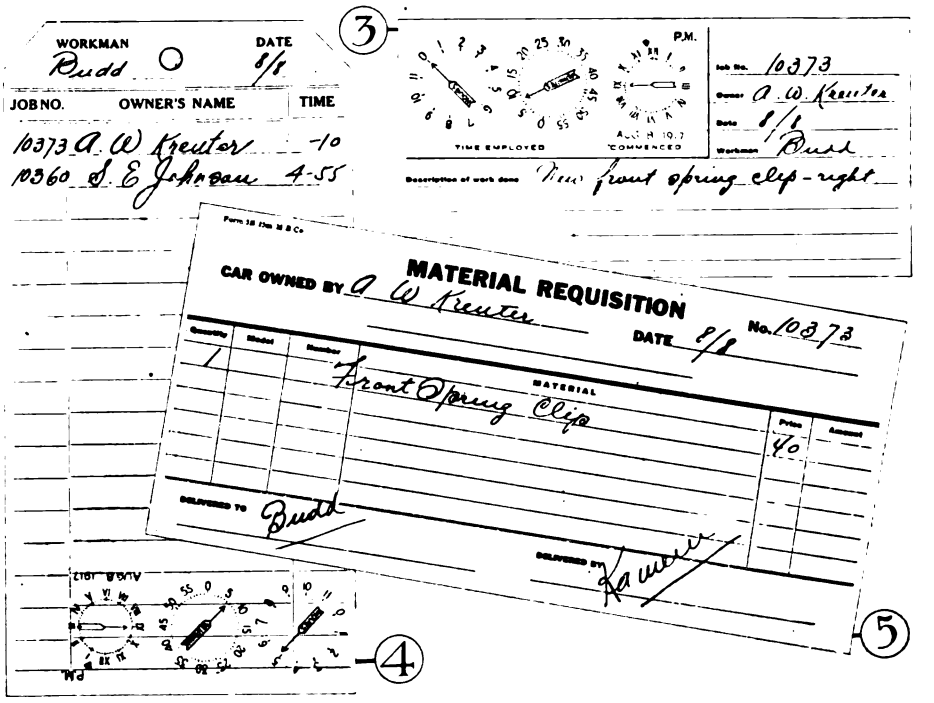


Fig. 3—As the workman starts any part of the job, he punches in on this job card. When the work is done, he punches out, and enters the elapsed time on to his daily time ticket. The job ticket goes to the accounting department. Fig. 4—This is the daily time ticket of the workman, and it must check with the individual job cards. Fig. 5—No material is issued from the stockroom except on the receipt of a material requisition. This shows the car receiving the part, and the workman to whom the part was delivered

The work is now completed and the bill made out. However, the customer cannot obtain his car until he presents a car release ticket from the accounting department to the service foreman. This throws the entire responsibility for extended credit upon the accounting department—*another feature of the complete system.*

The owner delivers the release card and the instruction card to the service manager's office, receives his car and leaves.

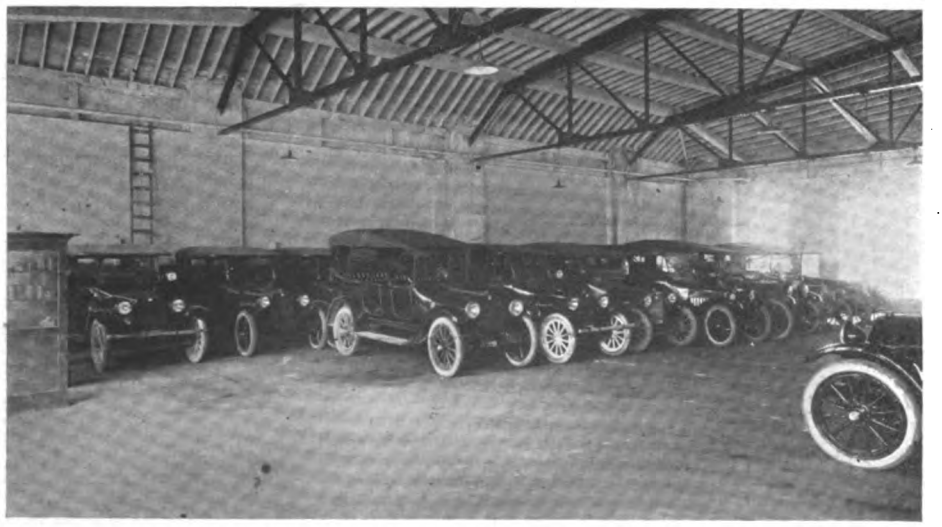
In the service manager's office a complete record of the car releases is maintained. This is done in a car release ledger, the sole purpose of which is to see that no cars are released without a release card from the accounting department. It is simply a book containing a list of the serial numbers of the jobs and the numbers are checked as the releases are received.

A card index record of each owner's car is also made out in the service manager's office. This record is shown in Fig. 7, and contains in condensed form a complete summary of each job.

The purpose of this record is to provide a continuous record of all the work done on any particular owner's car, giving the date, job number and parts that received attention. Then when the owner offers the common complaint that "you overhauled that rear axle a month ago," evidence is provided immediately that it actually was six months ago—and then upon the gearbox. This index is also a check to careless work.

All cards pertaining to each job are filed under the job number and are available in case any question arises about the work done. By them it is possible to trace back through the system and hold the individual responsible for any mistake.

Though this system has been developed in a shop employing from 30 to 40 men it could readily be applied to a shop of any size. It has promoted individual responsibility among the workmen and at the same time given satisfaction to the dealer and the owner alike. *It is a straight-line, clearly defined time-keeping system for the repairshop.*



This is the Becker receiving and delivery room. The service manager's office is at the far left, near the entrance

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Co-operation That Is Co-operation

Why the Harrisburg Motor Dealers' Association Is Successful

THE dealers of Harrisburg, Pa., have gotten together. Their organization shows such good results that they just can't hold in. They have found real co-operation so good for business that they want the other fellow to know about it. This letter from the president, George G. McFarland, is a crackerjack and will be an inspiration to other dealer associations.—Editor.

EDITOR, MOTOR WORLD: We are bubbling over with enthusiasm at the organization we have in our dealers' association. The trouble is that we have accomplished so much to protect, safeguard and advise our dealers that we almost hesitate to talk about it.

I have never tackled anything in my life that I have been as much interested in, or that has offered as many possibilities for straightening out, as the organization of our local dealers, garagemen and all those affiliated with the automobile industry. I find that this business has been run in the most slipshod way of any business I have ever heard of, and the encouragement we have had from the dealers, their willingness to follow good practical lines looking to the putting of their business on a paying business basis, has been very gratifying.

Making Real Members

You know that when you infuse some real ginger into a business man, back him up with a regular organization; make him get his price and he finds at the end of the day he has some hundreds of dollars more in his pocket than he would have had had he not followed the new rules, besides the additional self-confidence and respect he has for himself, you have made a real member, and the second battle for price comes much easier than the first.

Our boys get up and tell of one transaction after the other in which they demanded and received the full list price. The interesting part is that they also tell us of the cute and peculiar remarks that the customer makes in reference to this change of heart among the dealers.

To say that we are enthusiastic is putting it mildly, and the way things are going now makes it simply impossible for anybody to spill our kettle of beans.

The only thing essential to the successful operation of similar plans throughout the country is the proper handling.

It has taken us about 18 months to get our association in its present condition; it took 15 months to get every dealer in the organization to have implicit confidence in the officers, and then the balance came easy. Why, our fellows get up and tell every little thing that happens every day. There has not been a member who has kicked over the traces or taken unfair advantage of anything divulged.

We have almost forty members, and 80 or 90 per cent of them attend every meeting. We are busy from 7:30 to 12 o'clock at night, and don't want to go home when 12 o'clock comes, and all want to know when we are going to have another meeting.

Men Who Get Results

Our officers are: Geo. G. McFarland, president and member of board of directors, who handles the Reo and Duplex cars and Cleveland tractor; Patrick Driscoll, vice-president and member of board of directors, Chevrolet distributer; Carl Hanson, member of board of directors, Overland distributer; E. L. Cowden, member of board of directors, Page and Apperson distributer; Frank Bosch, member of board of directors, distributer for Miller tires; J. Clyde Myton, secretary and show manager, who is also secretary of the Motor Club; Chas. Ensminger, treasurer, distributer for Dort cars.

At the present time we have thirty-eight members. There are only about six people who have garages or do repair work in Harrisburg who are not members. We have two classes of members, both of them active. The one handles automobiles and accessories and does a regular automobile business. This class pays $50 initiation fees and $15 a year dues. The second class have garages and sell sundries, but don't sell automobiles; they pay $25 initiation fees and $15 a year dues. When the garageman takes on an automobile he pays $25 more to join the first class. Both classes have the same privileges, but we figured that the automobile dealer has more gratuitous work done for him by the association than the garageman. Hence the two classes.

We have suggested to our members that they have a minimum charge for mechanical labor of 75 cents an hour, the maximum charge to be whatever they please.

We have, or are getting as the old ones run out, uniform leases, notes and selling agreements. We have a standard 24 hour guarantee coupon book, which allows a customer 7 hours free service per month, but he must come to our repair shops every month to get the benefit of that 7 hours.

This guarantee covers 3 months. It cannot be 21 hours in one month, or on one job for nothing, but must be spread over 3 months. We figure that if he comes to our place at least 7 hours for 3 months we have been able to instruct him and reinstruct him in the care of his car. If he has 20 hours work done in one month we credit him with seven and he pays the balance.

We also assume the factory guarantee to replace any defective part or material for the term of that guarantee free of charge for the part, but charging for labor and carrying charges.

Discouraging the "Shopper"

If Bill Jones offers me his car as a trade-in, and I make him a price of $500, we tell the members that we have offered Bill Jones $500 for this car in exchange for another kind of a car. This is to prevent Bill Jones telling the other dealers that we offered him $600 or $700, and playing both ends against the middle.

We also incidentally speak about our bad customers who owe us money and complain about repair bills that we have trusted them for, in open meetings. We have a uniform cash card nailed up in conspicuous places in our garages, announcing that all repair work is cash, except, of course, for such concerns as we are absolutely sure will pay their bills promptly. All of our guarantee books, leases, etc., are endorsed by the Harrisburg Motor Dealers' Association.

Another rule is that we cannot hire a hand from another repairshop or garage

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without first consulting the proprietor of that repairshop or garage. He tells me what he paid that man when he worked for him last, and what kind of a workman he was. One of the most important items to raise the character of the automobile repairman and employee is that we have told them in a very nice, diplomatic manner that their poor workmanship, their thieving, and other crooked work will be reported to the association, if detected, and that inasmuch as we give them their full salary every Saturday night in their envelopes, we expect full service in the shape of labor from them; that it is a 50-50 give and take proposition, and that if they are blacklisted with our association dealers it will be practically impossible for them to secure any labor in automobile work in Harrisburg.

Not a Single Knock

You have no idea how much good this has done us already. During the show just over there was not a single knock. If a man could not sell his own car he boosted every other car in the place. Nothing but clean work has been done up to date. If one dealer makes a sale the other fellows congratulate him.

We meet at least every two weeks, either at an evening or noonday luncheon, which the association pays for. Any surplus money we have from initiation fees or dues or the show is spent in cooperative advertising.

We are fined 10 cents if we call anybody "Mr." in the meeting, or on the streets. We have to shake hands all around before we can sit down. We have to know everyone. We won't let any outside automobile or accessory be displayed at the shows unless it comes through a dealer. We buy from each other. Our show space, including signs, advertising, electric lights, etc., has been worked down to costing our dealers less than 10 cents a square foot.

The directors are also the show committee, and while they have arbitrary power to do anything, yet they always tell the association members what they anticipate doing in advance, and get their views of it.

The more progressive dealers explain their systems at the meetings for the benefit of the balance of the members.

What the Members Get

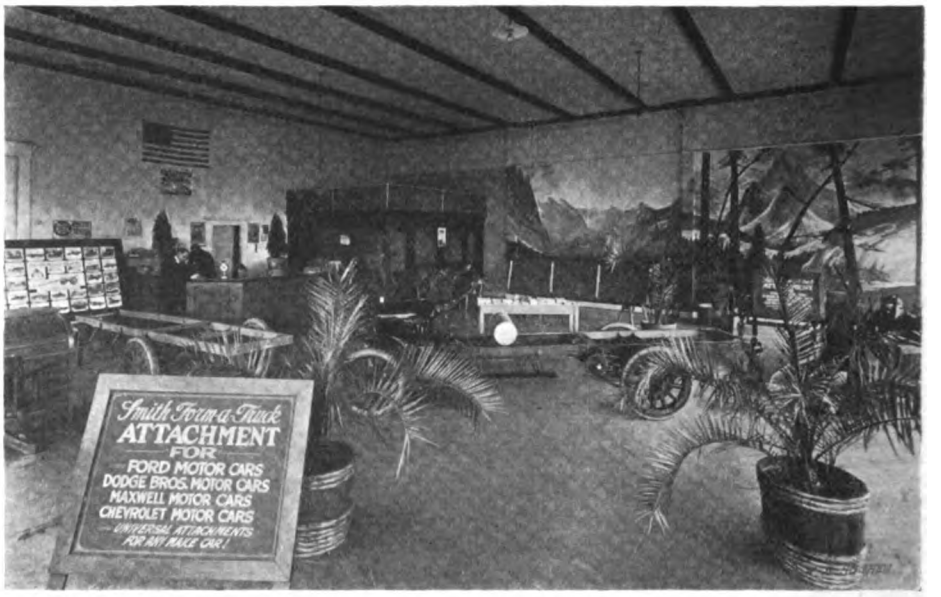
Our means of transaction and way of doing business is always open to any member for his assistance. We have legal advice free, and keep our members informed of all the new laws that are enacted looking toward our business. In other words, we are doing now what any practical set of business men should do toward getting for ourselves legitimate profits, having our bills promptly paid and protecting ourselves from shysters.

We are incorporated and have bought some Liberty Bonds. You can readily see that working as a unit we can accomplish a great deal. Don't think that we don't have our troubles, because we do, and don't think that we will not have our troubles this coming summer when business gets good, but every litter of pigs has its runts, and we have some in our association.

These fellows we are advising, counseling, and taking particular care to keep them straightened out and impressing upon them the fact that they have to stay straight.

Our rule that no dealer can take on another dealer's car agency without the first dealer's consent has already worked a wonderful benefit to us. This one feature alone I figure would almost keep us together. We, of course, will have to fire a few dealers if they don't break up before we fire them. We are going to try to prevent their breaking up, but if they prove themselves unworthy of being members of the association they are going to be dropped.

We find since we are organized that the big people of the community are asking us to use our united influence toward getting better roads and getting our city and county officials to co-operate with the state and government road officials toward the getting of better roads.—Geo. G. McFarland, president Harrisburg Motor Dealers' Association.



DECORATING a large salesroom for the artistic and impressionistic presentation of such a prosaic product as a truck unit attachment no doubt is considered by many dealers as somewhat of a job. The Smith Form-a-Truck Sales Co., Los Angeles, however, seems to have found the solution. The main wall is painted to represent a mountain landscape and a neat arrangement of potted palms and foliage plants helps out. The complete converted truck, separate attachment, special farm body and tractor attachment are all on display.

SHORT TRACTOR TRUTHS

Proper Care Means Long Life

THE life of the tractor on the farm is determined in no small measure by the skill of the man who operates it. It often is said that the man who understands the principles of construction and operation of the gasoline engine, or who can diagnose and remedy automobile troubles, is competent to undertake the operation of a tractor.

This is true in a restricted sense only. The tractor is far more than a gasoline engine on wheels, and it differs profoundly from an automobile. The gasoline engine and the automobile expert has a good start toward the understanding of a tractor, but it by no means follows that he is therefore a tractor expert. The ability to get the most and the best out of a tractor comes only through experience with the tractor itself. Many a machine has gone to wreck because of over-confidence on the part of the operator.

Must Fit Tractor To Job

REAL salesmanship in the tractor business is the fitting of the tractor to the job. There is no such thing as a tractor of universal adaptability. In all probability there never will be such a thing. Experience in tractor use has dissipated for all time the notion that there ever will be a machine of standard design which can be made to fit any combination of working conditions. Specialization will establish its necessity in the tractor trade just as it has in so many others. The man who would succeed in selling tractors must recognize this fact and he will display his ability by the selection of such a line as may be especially fitted for the average of conditions in his locality.

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The Greatest Thing That Hasn't Been Done

By Ray W. Sherman

"MILLER," said Reilly, as the dealer's service manager sat down beside the Sennett dealer's desk, "we've got to go at this conservation thing and get our business into shape. We've got to do it. We're going to skin through this period of stress if possible, and one of the things we're going to do is take some of this cost out of the service station."

Conservation—Not Conversation

"Conversation?" questioned Miller.

"No! ConSERvation! Not conVERsation! There's been too much conversation already. What we need now is a little action. Here's the National Automobile Dealers' Association, it has studied this thing and made a lot of recommendations about what we can do to make our businesses more efficient, and I for one am going to do something about it. I'm through just talking."

"Well! What and how?"

"Well," explained Callawassa's biggest and best dealer, "we of course shall cut out all the extra costs and wastes we can find; but one thing we're going to start is the elimination of all fussy, free service so far as possible. We are going to develop this idea for after-the-war use as much as for present use. We might have been a long time coming to it if it hadn't been for the war, but now that the war's here we're going to fly at it.

Teach Owners to Serve Themselves

"We're going to teach our owners how to give themselves a lot of the service that has been costing us money. We're going to teach them how to fix their own cars. We're—"

"Car owners can't fix cars," was Miller's contemptuous interruption.

"I don't expect they're going to overhaul motors," Reilly asserted, "but there are a thousand little things any car owner can do if he only has some intelligent and capable man like yourself to teach him how."

The compliment softened Miller. He relented.

"Well," he said, "maybe they could. I guess I didn't get you the first time."

"Now, here's the idea," Reilly continued. "Every time we sell a car we're going to take the owner in hand and teach him all we can about it. We're going to teach him how to make adjustments, how to fix grease cups, how to fix tires, how to do a lot of things and how to keep his car out of our service station.

"If he can do those things he will save us a lot of money. Instead of running down here every time the car has an ache or pain he will know enough to look around himself and find out whether the job is serious enough to require your attention. If it does, he will bring it in. If it isn't, he'll fix it himself.

"We have for a long time operated on the theory that we were giving service to our owners when we kept a service station here with a lot of expensive men to fuss and fool around with a lot of little things that any owner with sense could have fixed. Perhaps we even thought we were keeping a grip on our owners by keeping them in ignorance—but if so, it was a wrong theory.

Owners Who Know Are Good Boosters

"The more our owners know the more it is going to benefit us and the motor car business in general. It is going to make car owners better boosters for the business in general. We have advertised our cars as something any one could own and drive and then we have maintained an elaborate organization for taking care of the things the buyers couldn't do after they bought them.

"These buyers could do these things, however, if we would only do a little teaching. And the more the average owner can fuss with his car the better he likes it. We have always discouraged it on the ground that he didn't know anything about the car and therefore might do a lot of damage. The truth is the damage might be done because we didn't teach him how to do his own monkey-work. For the time being we may not be able to decrease the size of our service organization, but eventually we shall be able to get along with fewer men because so many of the owners will be doing their own service work. We can then keep our service station going on repairs and service for which we can collect real money.

"Instead of giving a man a service card that calls for a certain amount of free service we are going to work toward a form of service card—if we have any at all—that will provide for instruction in the operation of the car. We shall insist that if a man wants a nut screwed up he shall screw it up himself—but we'll show him how.

Familiarity Will Breed Friendship

"This close relationship between the buyer and his car will bring us back more repeat sales, I do believe. If a man once gets his fingers into the inside of his car and comes to know it he is going to love it more and more and believe there is no car in the world just like it.

"As to how we'll do it, that is something you and I will have to work out. We may do it through establishing an owners' school to which motorists and their wives may come of evenings and get instruction from you on the little things that constitute simple service.

"We can let them listen to motor noises and all sorts of knocks and symptoms and teach them what to do when they encounter various emergencies. If we can teach them what they can do and what they can't do and get them to do the things they can do and bring the other things to us we shall have revolutionized service so far as the Sennett car is concerned. And it will save us thousands of dollars.

"Now that the matter has been brought to my attention through these war-service recommendations it looks like a very simple and much-needed thing. It's so simple that I wonder nobody ever thought of it before.

Free Service—Big Overhead

"For years all us dealers—and especially the bigger ones in the larger cities—have been staggering along under an enormous overhead, part of which is occasioned by such things as our free service. We have all lamented the fact that we haven't made as much money as we should, and here one of the reasons is thrust right into our faces.

"Why we didn't get together and do it before is more than I can tell. Miller, it's the greatest thing that hasn't been done, and if we put it over it will be one of the most far-reaching reforms that has ever hit the industry."

"I'm for it," said Miller. "I'll try anything once."

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A Department of

BETTER MECHANICS

No. 71

Standardized Jobs on the Ford

Labor Charges for Every Kind of Repair Tabulated for Reference

By S. T. Williams

PERHAPS more than any other company, the Ford Motor Co. has applied modern production methods to giving the owner service. Where possible, factory tools have been applied to service work, and special tools have been designed.

Much of this has been rendered possible by the fact that the Ford car is practically standard—but the methods and systems that have been developed could readily be applied in almost any service station.

At present the tendency in service station work seems to be toward the "job basis" system. That is, each possible job on the car is classified, and the price of each job determined from the average of a large number of such jobs. To this is added a small margin that will permit the dealer to make a legitimate profit on the service work.

Then, when an owner brings his car to the service station, he is told the labor cost before the work is started—not a "guess" price, but the actual price that he will have to pay for the work he wants done. The desire to know the price in advance is common to all men; the ability to satisfy that desire creates confidence. And confidence is not commonly present in the average owner's mind.

The job basis system is simplicity itself after it has once been installed. But two cards are required—the productive labor card and the non-productive labor card.

On the productive labor card are listed the most common jobs to be done, together with the price of each job. Blank spaces are provided for the uncommon jobs, and these are copied from an office job list when required.

This card carries the owner's name and authorization of the work to be done, the reverse serving as a material and time record of the workman doing the work. The only purpose of this time record, however, is to see that the workman keeps within the time limit allowed for the job. When the limit is consistently exceeded, either the workman or

LABOR OPERATIONS ONLY--PARTS EXTRA

Time Received 8:15 am March 10 191

Name Sidney P Rueltton No. 3942

Promised Noon today Address #6 Oak St

Home Phone 52-R Business Phone 87-M

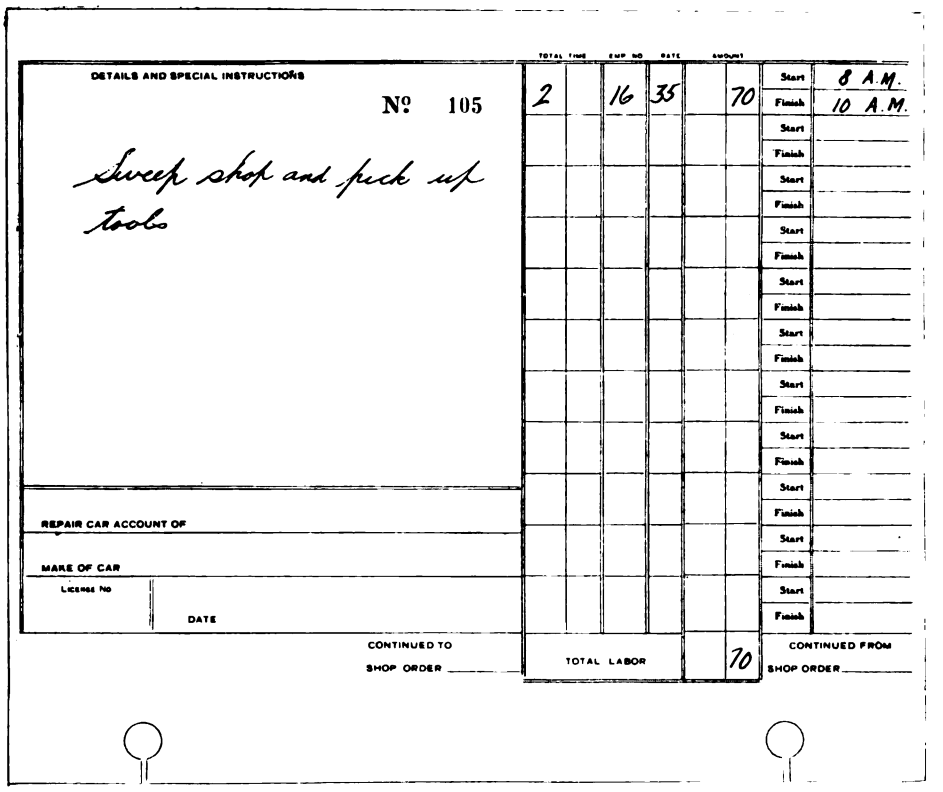
MOTOR	LICENSE	
	MOTOR DIVISION	
1	Overhaul Motor and Transmission	$16.00
2	Overhaul Motor Only	14.50
3	Overhaul Transmission Only	11.00
4	Rebrass Crank Case Arms or Support or Repair Leak in Case by Taking Out the Motor	10.00
5	Install or Re-fit One Piston or One Connecting Rod	5.00
6	Rebore Cylinder and Ream	3.00
7	Replace Transmission Bands or Transmission Cover Gasket	2.50
8	Rebabbitt Cylinder Block	3.00
9	Replace Cam Shaft or Re-fit Bearings	3.50
10	Grind Valves and Clean Carbon	2.75
11	Repair Cylinder Head Bolts Stripped Under Dash	5.00
12	Replace Cylinder Head Gasket	1.25
13	Replace Radiator	.60
14	Change Carburetor	.75
15	Overhaul Carburetor	2.00
16	Special Tune-up	1.00
17	Adjust Clutch Fingers	.60
	REAR SYSTEM DIVISION	
18	Overhaul Rear Axle Assembly	6.00
19	Repair or Replace Drive Shaft Tube	4.00
20	Repair or Replace One Rear Radius Rod	1.50
21	Replace Rear Spring Tie Bolt or New Leaf	3.00
22	Install Universal Joint	3.50
23	Install One or Two Brake Shoes and Equalizer Emergency Brake	1.25
24	Tighten Universal Ball Cap Bolts	.60
25	Change Brake Rod Supports (each or both)	.60
26	Replace Pull Rod Supports (each or both)	.60
27	Re-rivet Rear Axle Housings (each)	1.00
28	Re-rivet or Rebrass Drive Shaft Tube	1.00
	FRONT SYSTEM DIVISION	
29	Overhaul Front Axle including Rebushing	5.00
30	Rebush Spindle Bodies and Arms (each side)	1.50
31	Rebush Spindle Body (each)	1.00
32	Rebush Spindle Arm (each)	.75
33	Replace Front Spring or Tie Bolt only	1.00
34	Replace Radius Rod	.75

STALL	LIGHTS	
	FRONT SYSTEM (Continued)	
35	Straighten Front Radius Rod and Line-up Front Assembly	1.00
36	Tighten All Sockets and Joints Front System	1.25
	CHASSIS DIVISION	
	Front End and Frame	
37	Replace Front Cross Member	6.00
38	Straighten Front Cross Member (as cast)	3.00
39	Replace Rear Cross Member	7.50
40	Install Engine Plate—one Side, both	1.25
41	Replace Starting Crank Pocket Pin	.60
42	Repair Hand Brake Lever Assembly including replacing of Pawl	1.25
43	Tighten All Bolts and Nuts on Car	4.00
	Fenders and Running Boards	
44	Replace or Tighten Fender or Running Board	.60
45	Tighten All Fenders, Running Boards, Shields, and Trim Rods	S.T.
46	Replace Trim Rods (each or both)	.60
	Dash	
47	Change Dash	5.00
48	Change Coil with Yale Latch	1.50
49	New Switch on Coil Box or Change or Repair the Box	.60
	Steering Gear	
50	Overhaul Steering Gear (including replacing of Quadrant or Gear Case and Re-Bushing of Bracket)	4.00
	Muffler	
51	Change Long Exhaust Pipe	.75
52	Replace or Repair Muffler	S.T.
	Gas Tank and Lines	
53	Repair Leak in Touring Car Gas Tank	1.50
54	Repair Leak in Touring Car Gas Tank when necessary to remove body	6.00
55	Clean Sediment Bulb, Gasoline Feed Lines and Drain Carburetor	.75
	Radiator	
56	Overhaul Radiator including installing new Core	6.00
57	Repair Radiator, Solder one or two tubes and replace one or both Sides	3.00
58	Solder Neck or Top Tank or repair without removing from car	1.00
59	Remove Radiator to Solder Casting to Lower or Top Tank	1.50
	Wheels	
60	Change Hub, Rear or Front or place Old Hub in New Wheel	1.25
61	Remove Wheel to change Hub Parts or Cones	
62	Oil and Dope Car (including material)	.75

Authorized by Sid Gustafson

This is one of the two forms required to operate on a job basis as outlined in this story. This is the productive labor card, the other two being shown on the opposite page

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DETAILS AND SPECIAL INSTRUCTIONS

No. 105

Sweep shop and pick up tools

TOTAL TIME | EMP. NO. | RATE | AMOUNT

2 | 16 | 35 | 70

Start 8 A.M. Finish 10 A.M.

REPAIR CAR ACCOUNT OF

MAKE OF CAR

LICENSE NO. | DATE

CONTINUED TO SHOP ORDER

TOTAL LABOR 70

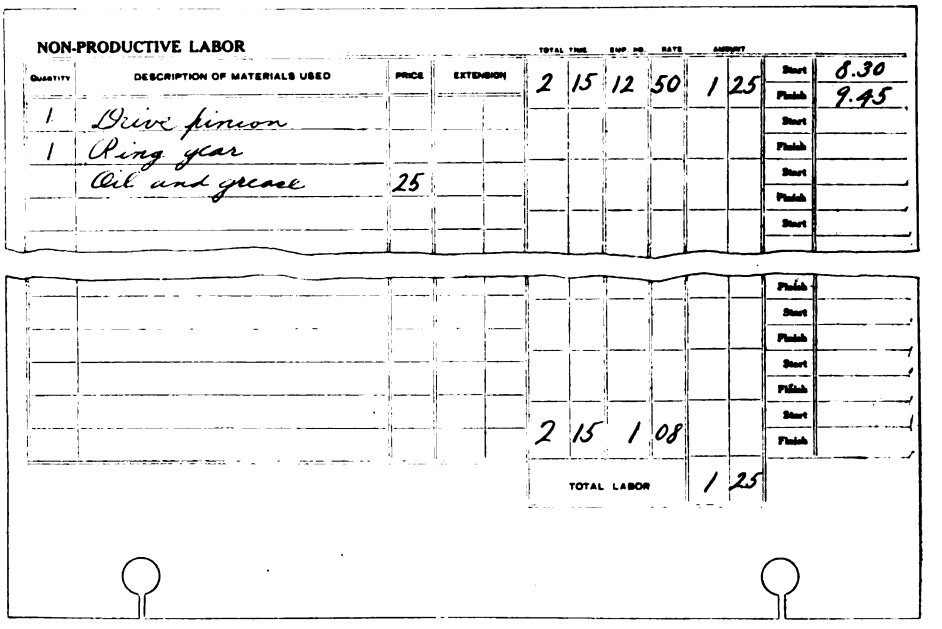
CONTINUED FROM SHOP ORDER

Front of the non-productive labor card, showing the method of making entries

the limit is changed. The average, however, should be well within the limit.

In figuring the cost of any one job, it is the usual practice to determine from many tests the average time required by a workman to do that job. The labor cost on the job is then determined by multiplying the time by the cost per hour of the workman. Then the cost to the owner is twice the labor cost plus a legitimate profit.

All of the cost above the labor cost covers the expenses incurred by providing the means whereby the workman can work, plus a legitimate profit to the dealer. This includes the rent, light, heat, equipment and management expenses, and is termed the "overhead expenses." In many shops the overhead is more than equal to the labor cost, but


NON-PRODUCTIVE LABOR

Quantity	Description of Materials Used	Price	Extension
1	Drive pinion		
1	Ring gear		
	Oil and grease	25	

TOTAL TIME | EMP. NO. | RATE | AMOUNT

2 | 15 | 12 | 50 | 1 | 25

Start 8.30 Finish 9.45

2 | 15 | 1 | 08

TOTAL LABOR 1 | 25

Back of the non-productive labor card on which the charge for labor is entered

the following example will show how the total cost may be figured for any job:

Total shop expenditure for 1 year. $17,000
Total labor cost for 1 year..... 8,000

Total shop cost for 1 year..... $9,000

$$\text{Percentage overhead} = \frac{\text{shop cost}}{\text{labor cost}} = \frac{\$9,000}{\$8,000} = 1.125 \text{ per cent}$$

Job cost = labor cost + 1.125 (labor cost)

Thus if the labor cost on any job be $2, the total job cost equals $2 + 1.125 × $2 = $2 + $2.25 = $4.25. To this should be added whatever profit the dealer feels advisable, giving the cost of the job to the owner.

All unproductive labor records are made on the cards shown in Figs. 3 and 4, and in this is included all work on shop cars, free service, and, in fact, all work not paid for by some outside party. All of the labor cards are made to fit into a loose leaf ledger, and when the work is completed are filed serially. The individual workman's time records are taken from these cards and used to check up the daily time records.

Labor Operations Covering Repair Work for the Ford Car

ENGINE DIVISION

The following charges cover work on cars driven into the agencies

Operation Number		Labor Charges
1	Overhaul engine and transmission	$21.00
2	Overhaul engine only	17.50
3	Overhaul transmission only or repair or replace magneto	11.00
4	Rebraze crankcase arms or support or repair leak in case by taking out engine	10.00
5	Install or refit one piston or one connecting rod	4.50
6	Install or refit two or more pistons or connecting rods	5.50
7	Replace transmission band or transmission cover gasket	2.00
8	Change engine	$5.00
9	Replace camshaft or refit bearings	4.00
10	Replace cam gear—large	2.50
11	Repair cylinder front cover or replace old style	2.50
12	Remove starter and put on standard equipment	3.00
13	Grind valves and clean carbon	2.50
14	Remove carbon only (this operation to be used only when customer will not permit grinding of valves)	1.75
15	Repair cylinder head bolts stripped—one or two	2.50
16	Repair cylinder head bolts stripped under dash	5.00
17	Clean out oil feed pipe	3.25
18	Replace cylinder head gasket	1.25
19	Replace radiator or one or all three hose connections	.60
20	Replace crankshaft starting pin or pulley	1.50
21	Tighten engine to frame	1.25
22	Clean crankcase or install gasket under lower cover	.75

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It is essential, in installing a system of this nature, that the cost be based upon the average time that the job requires. If the time limit is too great the workmen will tend to loaf; if too little, it is unfair to the workmen. By using the average time and placing a small premium on all jobs completed under the scheduled time, the system is made fair to both workmen and employer.

The greatest benefit from the installation of the job basis system seems to be that it introduces the element of competition into the repairshop. Each workman knows the time usually required to do the job on which he is working—and sets out to better that record. He knows that by doing this he will get more money, but more important, that he will break his own or his fellow workman's previous record.

To do this he will think out short-cuts and special methods whereby he can do the work quicker. He will talk with the other workmen and watch them in their work; he is open to suggestion from the foreman, for the job basis of doing work provides the workman with a measure by which he can gage his efficiency.

In these shops in which the job basis system has been installed the following seem to be the conclusions drawn:

1—The customer is better satisfied, after understanding the system.

2—The dealer is assured of a fair profit from the shop.

3—The workmen receive recognition for individual effort and work.

The list herewith shows the prices charged for each possible job on the Ford car, and the more common jobs are also listed on the job card. This list will serve as a guide to any dealer that desires to install the job basis system, or it can be used without change in those shops doing Ford repair work.

Operation Number		Labor Charges
23	Replace carbureter or manifold, or repair leak in manifold	$0.75
24	Install new butterfly spring	.75
25	Overhaul carbureter	1.50
26	Repair leaky carbureter	1.00
27	Replace commutator wire loom and brush—each or both	.75
28	Replace commutator pull rod joint	.60
29	Replace or rebush fan pulley assembly	.60
30	Adjust clutch fingers or trans. bands	.60
31	Stop oil leak in valve doors	.50
32	Install spring on foot pedals—each	.50
33	Replace core plug, one or more	.50
34	Install new starting crank handle	.50
	Operations 5 and 13 combined on one order	5.50
	Operations 6 and 13 combined on one order	6.50
	Operations 9 and 13 combined on one order	5.00
	Operations 13 and 15 combined on one order	3.50
	Operations 7 and 17 combined on one order	4.25
	No charge for operation 14 when combined with operations 5, 6 or 9.	
	No charge for operation 19 when combined with operations 228 or 238.	
	No charge for operation 30 when combined with operation 7.	
	No charge for operation 19 when combined with operation 11.	

The following extra charges should be made for special equipment

Overhauling engine equipped with starter (according to time required to remove)	$2.00 to $5.00
Grinding valves, fitting pistons or connecting rods when necessary to disconnect starter or special ignition system wires	1.50
Overhaul engine equipped with Bosch, Splitdorf or special ignition system	1.50
Overhaul engine when necessary to remove special body	5.00

Parts brought in or shipped in for repairs

55B	Overhaul engine and transmission	$15.75
56B	Overhaul only	11.00
57B	Overhaul transmission only	4.00
58B	Rebore cylinder only, including fitting of pistons	2.00
59B	Rebore and rebabbitt cylinder, including fittings of pistons	3.25
60B	Rebabbitt cylinder only	1.25
61B	Rebabbitt cylinder, fit crankshaft and run-in	2.00
62B	Rebore and rebabbitt cylinder, including fitting of pistons, crankshaft, connecting rods and running-in	5.00
63B	Rebore and rebabbitt cylinder, fit pistons, valves, push rods, camshaft, crankshaft, connecting rods and run-in	7.50
64B	Rebore and fit piston and valves	2.50
65B	Rebore and fit pistons, valves and push rods and straighten and fit camshaft	3.25
66B	Rebush three transmission drums	1.50
67B	Rebush transmission drums—each	.60
68B	Rebush three triple gears	.75
69B	Braze crankcase arms and supports	2.00
70B	Repair crankcase drain plug housing	2.00
71B	Overhaul or repair carbureter	1.00
72B	Disassemble ⅝ in., 9/16 in. or ¾ in. magnets from flywheel and install new set	$0.60
73B	Straighten crankshaft	1.00
74B	Straighten camshaft	.60
75B	Straighten camshaft and fit bearings	1.00
	Operations 69B and 70B combined on one order	3.00

REAR SYSTEM DIVISION

The following charges cover work on cars driven into the agencies

96	Overhaul rear axle assembly and rebush springs and perches when necessary	$6.00
97	Repair or replace driveshaft tube	4.00
98	Repair or replace one rear radius rod	1.50
99	Replace rear spring tie bolt or new leaf, including polishing and graphiting of leaves and lining up of body (when overhauling rear axles or graphiting springs no charge should be made for removing shock absorbers)	3.00
100	Remove front and rear springs, polish and graphite leaves only	3.00
101	Remove shock absorbers and install perches	1.5
102	Pad rear spring to line up body or replace rear spring tie bolt only	1.50
103	Rebush spring and perch	2.00
104	Install universal joint	2.75
105	Straighten axle shaft (without removing from car)	1.50
106	Tighten rear radius rod	.75
107	Install felt and steel washers—one side 60 cents, both sides	1.00
108	Install one or two brakeshoes and equalize emergency brakes	1.25
109	Tighten universal ball cap bolts	.60
110	Install or tighten rear spring clips	.60
111	Tighten rear hub lock nut (one side or both)	.50
112	Fit new hub keys—each side	.75
113	Replace pull rod supports—each or both	.60
114	Rebush hub brake cam or replace cams—each side	1.50
115	Replace rear axle assembly	2.25
116	Adjust pull rods or replace one	.75
117	Straighten rear radius rod (in car)	.75
118	Install outer roller bearing—each	1.25
119	Replace rear axle shaft, drive shaft pinion or drive gear (no other work necessary)	3.00
	Operations 96 and 99 combined on one order	7.25
	Operations 96 and 102 combined on one order	6.50
	Operations 96 and 110 combined on one order	6.25

The following extra charges should be made for special equipment

Axle	Overhaul, when necessary to remove special truck racks or truss rods	$1.00
Axle	Overhaul, when car has shock absorbers and owner will not permit removal	1.00
Axle	Overhaul, when car is equipped with special hub brakes	1.50

Parts brought in or shipped in for repairs

140B	Overhaul rear axle	$4.00
141B	Re-rivet rear axle housings—each	1.00
142B	Install new drive shaft tube in drive shaft assembly only	1.00
143B	Re-rivet or rebraze drive shaft tube	1.00

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Operation Number		Labor Charges
144B	Straighten or repair rear radius rod	$0.60
145B	Overhaul differential assembly with shafts	1.00
146B	Remove old and press new gear on axle shaft—each	.25

FRONT SYSTEM DIVISION

The following charges cover work on cars driven in the agencies

167	Overhaul front axle, including rebushing of spring and perches when necessary, straightening of parts and lining up and adjusting of wheels	$5.00
168	Rebush spindle bodies and arms—each side	1.50
169	Replace or straighten front axle (no other repairs)	2.50
170	Rebush spindle body—each	1.00
171	Rebush spindle arm—each	.75
172	Replace broken off radius rod ball cap stud	2.50
173	Replace front spring tie bolt or new leaf, including polishing and graphiting of leaves; or remove shock absorbers, installing standard material and graphiting leaves	2.00
174	Replace front spring or tie bolt only	1.00
175	Tighten radius rod or steering gear ball cap	.60
176	Replace radius rod	.75
177	Straighten front radius rod and line up front assembly	1.00
178	Replace spindle arm or body and line up assembly	.75
179	Replace radius rod ball cap with new style	.60
180	Tighten all sockets and joints of front end	1.25
181	Replace or straighten spindle or steering gear connecting rod	.60
	Operations 167 and 172 combined on same order	6.50
	Operations 167 and 173 combined on same roder	6.00
	Operations 167 and 208B combined on same order	6.50

The following extra charges should be made for special equipment

	Overhauling front axle when bumpers, special radius rods, "Little Steersmen," and such devices are used	1.50

Parts brought in or shipped in for repairs

202B	Straighten front axle	1.50
203B	Straighten radius rod	.60
204B	Install stud in radius rod	.75
205B	Rebush spindle body and arm	.75
206B	Rebush spindle arm	.40
207B	Rebush spindle body	.50
208B	Rethread front axle by drilling out and bushing	2.00

CHASSIS DIVISION

The following charges cover work on cars driven into the agencies

Front End and Frame

228	Replace front cross member	$6.00
229	Replace front cross member when radiator is off	5.00
230	Straighten front cross member (without removing from car)	3.00
231	Replace rear cross member	7.50
232	Replace side member or frame	13.50
233	Install engine pans—one 75 cents, both	1.25
234	Tighten engine pan	.60
235	Tighten crankcase front and bearing cap	.60
236	Install hood clips or springs—or hood board—each side	.60
237	Free up hand-brake lever	.60
238	Remove radiator to replace radiator stud or tighten fender brackets—each or both	1.00
239	Replace starting crank ratchet pin	.60
240	Replace starting crank or sleeve	1.25
241	Install runningboard bracket	2.50
242	Repair hand-brake lever assembly, including replacing of pawl	1.00
243	Replace hand-brake lever quadrant without removing runningboard shield	1.25
244	Tighten all bolts and nuts on car	3.00
245	Tighten body bracket bolts	1.00
246	Install tail lamp bracket	.60
247	Install new gas line for Presto tank or generator	.75

Fenders and Runningboards

258	Replace or tighten fender or runningboard	.60
259	Tighten all fenders, runningboards, shields and truss rods	1.75
260	Remove fender or runningboard and straighten	1.00
261	Replace runningboard shield—one $1.25, two	2.00
262	Install fender-to-shield bracket—each	.60
263	Install metal tool box	.75
264	Repair, tighten or install rear fender iron	.75
265	Replace truss rods—each or both	.60

Dash

276	Replace dash	4.50
277	Replace dash when engine is out	1.50
278	Tighten dash bracket to body and dash	1.25
279	Replace coil and install Yale lock	1.50
280	Replace coil, install new switch on coil box or repair the box	.60

Steering Gear

291	Overhaul steering gear, including replacing of quadrant or gear case and rebushing of bracket	3.50
292	Overhaul steering gear when engine is out	2.50
293	Tighten rivets of internal gear case	1.25
294	Tighten at dash and rebush bracket	1.25
295	Replace wheel or spider	.60
296	Tighten at dash and post	.75
297	Replace steering gear assembly	3.00
298	Rebush bracket only	.75
299	Tighten steering gear case cover	.75

Muffler

310	Change long exhaust pipe	.75
311	Replace or repair muffler	.60
312	Repack exhaust pipe pack nut	.60

Gas Tank and Line

323	Repair leak in touring car gas tank	1.50
324	Repair leak in touring car gas tank (when necessary to remove body)	6.00
325	Clean sediment bulb, gasoline feed line and drain carbureter	.75

Hood

336	Straighten hood	1.00
337	Install hood leather	.60

Radiator

348	Overhaul radiator	6.00
349	Overhaul radiator (installing new core only)	3.75
350	Repair radiator, solder one or two tubes and replace one or both sides	3.00
351	Solder neck or top tank or repair without removing from car	1.00
352	Solder casting to lower or top tank when necessary to remove radiator	1.50
353	Replace radiator pet cock	.60

Wheels

365	Change hub, rear or front and install wheel and tire	1.25
366	Replace wheel and tire—each	.60
367	Adjust and dope front wheels	.60
368	Remove wheels and change hub parts or cones	.60
369	Line up front wheels when brought in for this operation only. (When car is in for other repairs no charge should be made for this work)	.60
370	Oil and dope car, including material. (Graphiting springs in car $0.75 extra)	.75

Paint Division

391	Repaint and revarnish chassis only	10.00
392	Repaint and revarnish car—touring or runabout	20.00
393	Repaint and revarnish coupelet	35.00
394	Repaint and revarnish town car	30.00
395	Repaint and revarnish sedan	45.00
396	Repaint and revarnish body only—touring or runabout	10.00
397	Revarnish body only—touring or runabout (on chassis)	5.00
398	Revarnish body only—sedan or couplet (on chassis)	10.00

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399	Refinish deck on torpedo runabout	$1.50
400	Refinish fenders, dust shields, running boards, wheels, hood or tool boxes off car, each	.50

Body Division

411	Tighten all doors	1.25
412	Install new lock—touring or runabout—each	1.00
413	Replace town car or sedan door lock	1.50
414	Replace top irons, each	1.00
415	Install new leather on door panel—one, $0.60—two	.75
416	Install new leather on arm rest	1.00
417	Patch section of upholstering	1.00
418	Re-upholster touring body (using new material)	6.00
419	Re-upholster runabout body (using new material)	3.00
420	Change closed body	8.00
421	Change touring or runabout body	5.00
422	Take dent out of any side panel	4.00
423	Take dent out of any side panel and refinish	6.00
424	Take dent out of door	2.00
425	Take dent out of door and refinish	3.00
426	Take dent out of rear or corner panel without removing from car	8.00
427	Take dent out of rear or corner panel and refinish without removing from car	10.00
428	Take dent out of rear or corner panel (when removed from car)	13.00
429	Take dent out of rear or corner panel and refinish (when removed from car)	15.00
430	Take dent out of torpedo deck and refinish	2.00
431	Repair front or rear seat cushion	2.50
432	Replace binding on one or more doors	.75
433	Put on new trim rail	2.50
434	Replace door hinge	.75

Top and Windshield Division

455	Overhaul touring car or torpedo top, including recovering, lining-up and fitting of curtains	6.75
456	Replace top deck or side quarters—each or both	4.50
457	Line up and dress top	2.00
458	Install and fit top (if new top is purchased—no charge for labor)	1.25
459	Repair tear in top up to 4 in	$1.00
460	Replace front or rear bow-touring or runabout	2.50
461	Replace center bow-touring or runabout—each	1.25
462	Patch small pin holes	.60
463	Patch hole in curtain or replace celluloid	.60
464	Replace back stay—1914 and earlier	.60
465	Replace back flap curtain—1914 and earlier	.75
466	Replace celluloid in back flap curtain—1914 and earlier	1.00
467	Replace back curtain—1915	1.50
468	Replace celluloid in back curtain—1915	1.75
469	Refit complete set of side curtains	1.50
470	Refit one side curtain $0.60—two	.75
471	Replace top box socket—touring or runabout	1.25
472	Replace windshield—1914	.75
473	Replace windshield—1915—and line up windshield frame	1.00
474	Replace windshield glass upper 1915	.60
475	Replace windshield glass lower 1915	1.00
476	Replace windshield glass 1914—each	1.00
477	Replace hinge—1914 or 1915	.60
478	Replace or tighten dash clips and hinge screws	.50
479	Pack windshield glass to take out rattle—each	1.00
480	Replace windshield bracket—1915	1.50
481	Repair windshield lower frame 1915 and install glass	1.75

Lamp and Horn Division

502	Replace or repair electric headlight switch	.60
503	Straighten damaged head lamp	1.25
504	Take dent out of head lamp door frame and replace glasses	.75
505	Clean up and repair set of oil lamps 1915 to make burn	1.00
506	Install electric horn and wire	1.00
507	Install electric headlights and wire	1.50
508	Install new parts in oil lamp—each	.60
509	Take short-circuit from switch or lamp	.60

Special

530	Tow-in-per-mile (beyond city limits, charge extra according to time consumed)	.50
531	Start-up (add for each additional mile 15 cents)	.60

Explaining the Advantages of Rural Express Plan

WASHINGTON, June 10—The Highways Transport Committee, Council of National Defense, has issued a bulletin calling the attention of the nation to the rural motor express plan. The bulletin tells in detail the need for rural motor express establishments, and shows that the reasons for it are threefold, including the increased volume of foodstuffs to be hauled during the war, the need for man labor on farms, and the need to encourage local food production.

The bulletin tells the advantages of the rural motor express:

1. Food production as stimulated by the regular outlet to the market.

2. Shortage of labor has been reduced, since the motor trucks will leave the farmer on the farm.

3. Farm machinery proves efficient because spare parts and repairs can be made properly.

4. The railroads are relieved of local freight, permitting them to handle carload lots for long hauls.

5. The rural motor express helps to avoid the necessity for local freight embargoes.

Suggestions on conducting rural motor express routes, including expense, charges and other details, will be furnished to any one interested by the Highways Transport Committee of the Council of National Defense, Washington, D. C.



Reproduction of poster which the Oliver company is distributing to dealers to advertise tractor plowing

Oliver Sets Week to Boom Tractor Farming

THE Oliver Chilled Plow Works, South Bend, Ind., has dedicated the week of June 10-15 to the promotion of tractor farming, and is devoting all its efforts to helping Oliver dealers impress upon the food producers in all farm communities the one vital fact that "food will win the war," and the grave importance of preparing at once to insure the mammoth production of foodstuffs which it is not only our duty but our necessity to produce. To assist dealers in carrying out the idea of National Oliver Week, the Oliver company will run advertising campaigns in farm papers, supply dealers with advertisements for local papers, supply posters, award prizes to dealers in each branch district for the best advertising effort and supply stickers for correspondence.

The entire personnel of the Oliver organization, including two factories, seventeen branches, fifty-three stock transfer houses and the entire corps of salesmen, numbering about 500, will participate in the movement. Each man will devote his full time and energy to it and each dealer will preach the gospel of early ordering in conjunction with the Oliver organization.

A very conspicuous poster has been prepared by the Oliver company. It will be prominently displayed by dealers during Oliver week.

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The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer.

THE LAW

By George F. Kaiser

As It Applies to
Dealers
Repairmen
Garagemen

Law or Wit?

Sometimes even a lawsuit causes a hearty laugh. Recently suit was brought by the proprietor of a garage who sued a motorist for the amount which he claimed was due for repairing the latter's automobile. The motorist claimed that the work had not been properly done and had to be done over, and when the garageman asked for particulars the following "knockout" was furnished by the motorist as his reason for being unwilling to pay:

"The items of work done and material furnished in making such repairs were: The engine was adjusted, so that the same would operate and propel said car without unseemly noise, and without forcing the push rods down with excessive force, and without causing the same to become bent and disabled; the pistons were properly adjusted, and number six piston was placed in its proper place, and so was number one piston; the bearings were corrected and properly adjusted; the cylinder head gasket was repaired and the leak therein stopped; the crank case repaired and the leak stopped, and the engine was adjusted so that no oil would be thrown over it; one bent push rod was taken out, straightened, and replaced; one valve that had been bent by the push rod was taken out and a new one inserted; two valves which had been bent were straightened, and all of the valves were properly timed, so that the engine would operate and propel said car easily, smoothly, unhesitatingly, unintermittently, and in a mechanical and proper manner, and so as not to cause or allow to emit therefrom the loud and unseemly noises which were emitted as a result of plaintiff's alleged repairs thereto, to the great damage of the mechanical parts of said automobile, the undue disturbance of the peace and quietude of the streets and highways of the city, the intense aggravation and disgust of the general public, the fiendish amusement and delight of the children on the streets, and to the utter amazement and undying chagrin of this helpless and unfortunate defendant."

Beware the Minor

Another case showing the danger of dealing with a minor has just been decided—this time by the Supreme Court of New Jersey—and it was held that a garageman's lien for storage in that state does not attach against a car owned by one under age.

Suit was brought by a minor owner of a motor car to replevin it from a garage keeper who held it and refused to surrender it under his claim of a garageman's lien. The garageman claimed that the minor was indebted to him for repairs, for supplies, and for storage.

The minor admitted that he had stored the car in the garage, that the supplies had been furnished and that the repairs had been made, but claimed that he was nevertheless not responsible for the indebtedness because he was not yet twenty-one years of age.

The garageman contended that the minor was guilty of misrepresentation because he had held himself out to be over twenty-one years of age at the time he delivered the car for storage, and that as the minor was engaged in the business of using his car as a passenger vehicle for hire he should be held responsible on the ground that the supplies, repairs and storage were "necessaries," as even minors are responsible and are bound to pay for necessaries.

The court in deciding the case, however, refused to adopt the garageman's theory and held that even though a minor decides to go into business on his own account that that does not cure his incapacity to contract, and the fact that a minor misrepresents his age cannot be set up against him. The contract was therefore decided to be invalid and the court further decided that the garage keeper had no valid garageman's lien under the New Jersey law but must surrender the car even though he was still unpaid.—LaRose vs. Nichols, 103 Atl. (New Jersey) 390.

Can "Beat" the Boss

The Supreme Court of Wisconsin recently decided that a salesman whose employer's contract of agency with an automobile manufacturer is about to expire may solicit for himself his own appointment to the agency upon the expiration of his employer's contract without being guilty of such a breach of duty toward his employer as will justify the latter in refusing to pay a balance due the salesman under their contract of employment.

Suit was brought by a salesman against his employer for a balance due under a contract of employment which had been entered into between them.

It appeared that the employer had had an agency contract with the Ford company in his state, which contract was to expire on Aug. 1, 1915. In June and July of that year, and while still employed as a salesman, the salesman circulated a petition which recommended himself and another man to the company for appointment to his employer's agency for the new term. The salesman was unsuccessful and his employer obtained a renewal of his contract with the company.

After Aug. 1 the employer heard of the salesman's attempt to get the contract away from him and refused to pay him a balance due under his contract of employment on the ground that he was guilty of a breach of duty in soliciting the agency while he was still employed. The court decided, however, that there was no breach of the employment contract on the salesman's part and that therefore there was no forfeiture by him of the amount which he claimed from his employer.—Rathenberger vs. Jacobs, 167 Northwestern (Wisconsin) 271.

Fight Removal of Curb Stations

DETROIT, June 8—The proposed city ordinance ordering the removal of gasoline filling stations and air service pumps from Woodward Avenue was defeated by the opposition of the garagemen and accessory store proprietors; who circulated a petition of protest among their patrons and motor car owners. At a meeting held in the Board of Commerce, W. T. Wilson, chairman, declared that to remove his sidewalk equipment, which was installed at a cost of several thousand dollars, would cost more than the equipment would be worth. He also stated that the enforcement of the proposed ordinance would mean the commercial ruin of many garagemen and accessory dealers.

As a result of this meeting it was proposed that the garage men form a permanent organization. Indications point to a fulfillment of this proposal.

Ford Motor Co. Moves

DES MOINES, June 8—The Des Moines branch of the Ford Motor Co. began moving into its new $1,000,000 assembly and service plant at Grand and Eighteenth streets May 28 and was ready for business June 1. The new service plant is a six-story structure of concrete, steel and glass, 453 x 120 ft. in ground area. Its present capacity is the assembly of 400 cars per day.

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Repairshop Shortcuts

From Motor World Mechanics

No. 1700—SWINGING VISE CRANE

A swinging vise crane is made with a pillar cut from a length of 1¼-in. iron pipe, the base on which it rests being a short piece of the same size pipe, split half its length and bent out so that it can be drilled and fastened to the bench with lag screws or bolts. A piece of solid round steel stock to fit in the pipe is pinned in the base, the upper end projecting for the pillar to rest on. The top of the pillar is split to take the arm and a slot is cut about one-third the way up to take the brace. The arm and brace are 1¼ x ½ in. flat bar stock, secured with rivets. A hole in the end of the arm takes the hook of the tackle block and the pillar is fastened to the wall so it can turn by heavy strap iron bent around the pipe.—Charles H. Willey, Concord, N. H.

No. 1701—IMPROMPTU TAPS AND DIES

A damaged thread on a bolt, screw or stud may be smoothed over by taking a nut which fits and filing two slots as shown. If the threads are only slightly damaged it will not be necessary to cut the slots, but if they are very badly deformed it must be done. Likewise a nut with crossed threads may be trued up with a bolt which has similar slots filed in it.

No. 1702—ADJUSTABLE FLOOR-LIGHT CLUSTER

A portable floor-light cluster adjustable for height is made up of pipe and stock pipe fittings. The upper member uses a reducing plug, socket, tee, 45-deg. ell and close nipple, the upright piece of pipe screwing into the tee. The lower part of the stand is made of a size larger pipe into which the upright piece slides, being locked to any desired height by a clamp with lever-handle bolt. Concrete is molded around the lower end to form a base.—Charles H. Willey, Concord, N. H.

No. 1703—VALVE RESEATING TOOL

A tool to reseat air and oil valves is made of a piece of ¼ in. tubing by flaring one end, inserting a steel ball the same size as the one used on the seat and cupping the edge of the flare around the ball.—R. E. Brown, Anderson, Ind.

No. 1704—VALVE SPRING TESTER

In order to insure perfect running of the engine it is necessary to know that all valve springs are of proper tension, and in order to determine this a weighing device such as the one shown is required. A certain spring deflection should occur when a certain weight is applied, the amount depending on the spring. For absolute accuracy a table of spring weights and deflections should be obtained from the manufacturer of the engine. However, even if this is not at hand it is possible to determine whether a given spring is too weak by comparing it with a new one or one which is satisfactorily performing its work. The apparatus illustrated consists of a device for holding the spring, a spring balance scales and a block and tackle for applying the load. The spring is slipped over a rod the size of the valve stem and then the valve spring seat and retaining key are put in place. A pull on the loose end of the rope compresses the spring, the deflection can be measured by noting the movement of the rod in its guide, and the weight is read directly on the balance.—Pierce-Arrow Service Station, Buffalo.

$1 a Helpful Kink

HOW often have you been compelled to rack your brain to overcome some difficulty? But when you did find a solution—what a satisfaction it was! Well, here's a chance for you to dig some of those life-savers out of their hiding places and put them to work for your fellow-craftsmen. Send them to Motor World. We will pay you a dollar for every one accepted for publication.

The only requirements are these:

1—Describe the shortcut briefly but clearly, in few words.

2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job.

3—Write on ONE side of the paper only.

4—Sign your name and initials, the name of the company you are with, and the town.

Write plainly. If your name is unusual, print it in capital letters.

No. 1705—CONDUIT FOR WIRING

The flexible tubing which houses the speedometer shaft may be used for metal conduit in rewiring a car. It, of course, may be cut to any length desired, and its original length is usually sufficient for maximum requirements. The ends where the wires leave the conduit should be taped to prevent dirt or moisture entering and also to prevent chafing of the insulation on the conduit.

No. 1706—CRANKSHAFT COUPLING WRENCH

A tool for turning the crankshaft by means of a grip on the edge of the coupling is made from flat steel stock with a hole drilled near the serrated end and a U-shaped piece of rod riveted in the hole so that it moves but fits tightly. It is adaptable to all size couplings or spacing of bolt holes.—Charles H. Willey, Concord, N. H.

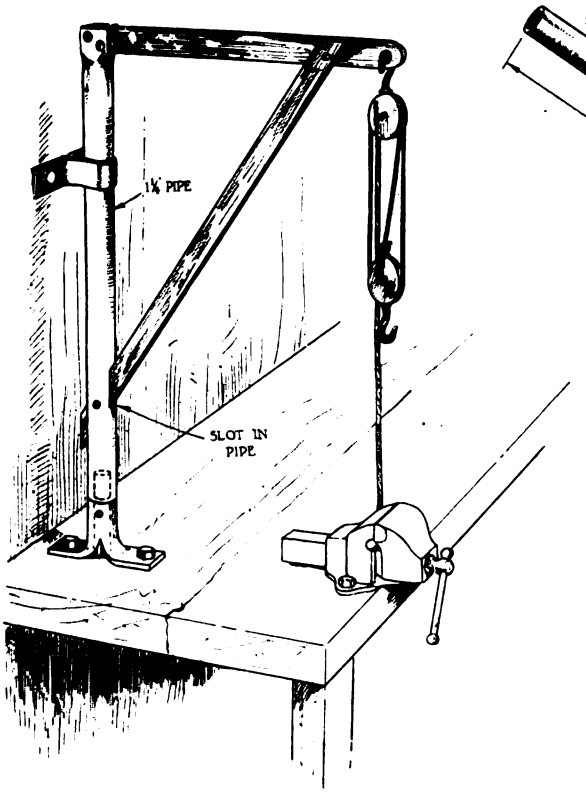
No. 1707—CONTINENTAL RIM TOOL

The old type split Continental rim with a series of interlocking teeth all around the circumference is perhaps considered the hardest type to take apart, but if a jack is employed there is no type which comes apart more readily. The edge of the base of the jack is set against a large lug adjacent to the locking device and the head against one of the teeth on the other half of the rim. Two or three strokes of the jack are sufficient to do the work. The jack may be similarly used to put the rim together. This is miles ahead of the usual method, which is to use a hammer and a cold chisel.

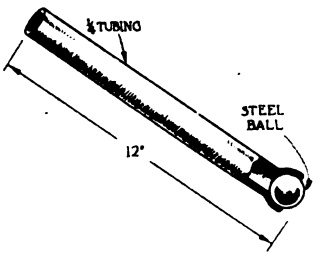
No. 1708—ADJUSTABLE WORK HORSES

Work horses that are adjustable for height are made by attaching heavy legs to the top beam, which is considerably wider than in the case of a conventional work horse. The top piece has two square holes cut in it, and two sliding pieces which support the top piece of the adjustable member have holes bored in them at intervals. Metal pins slipped in the holes hold the top piece at the desired height. By placing two planks across two of these horses an adjustable platform is made.—Charles H. Willey, Concord, N. H.

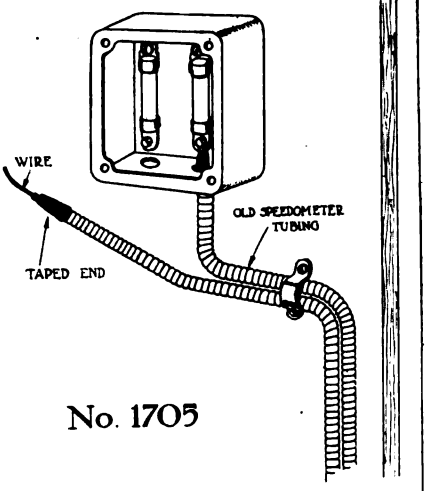
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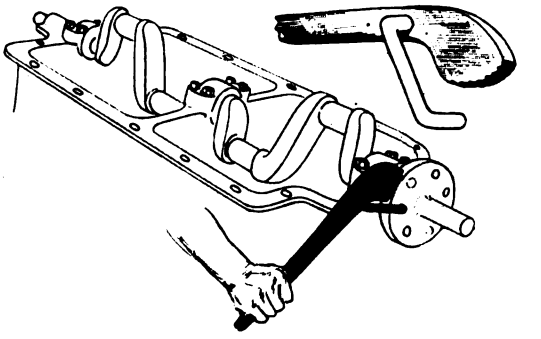
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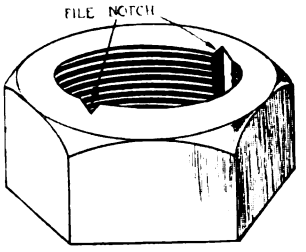
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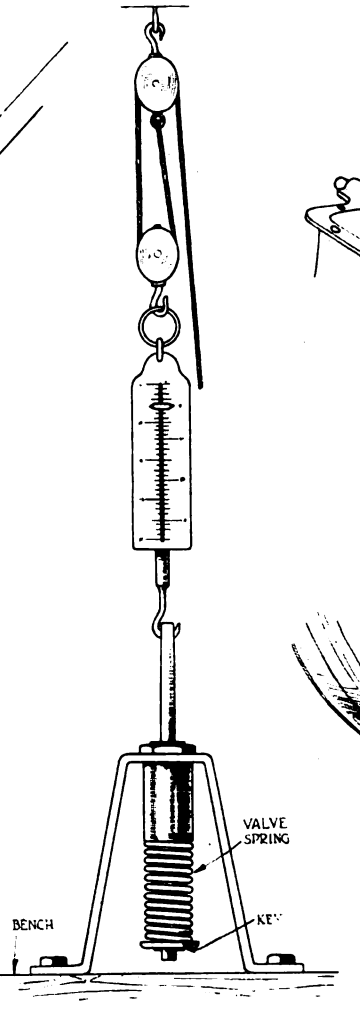
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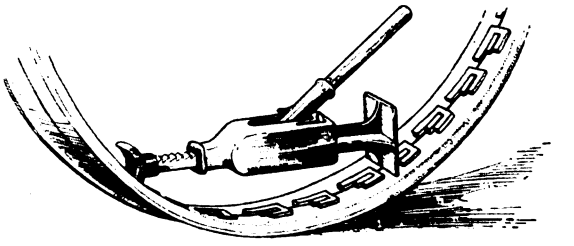
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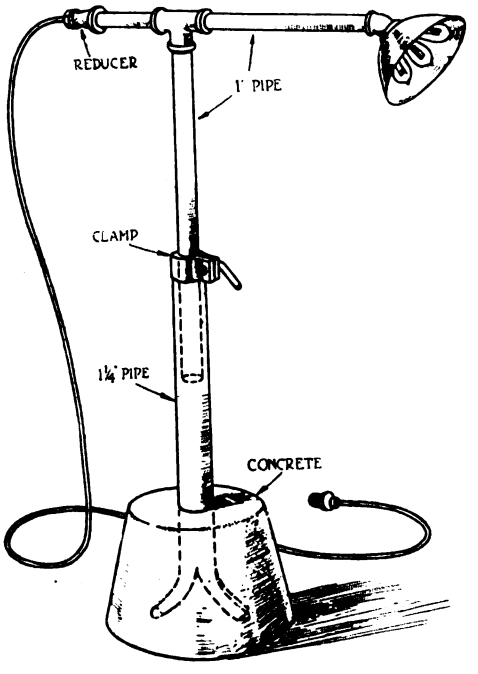
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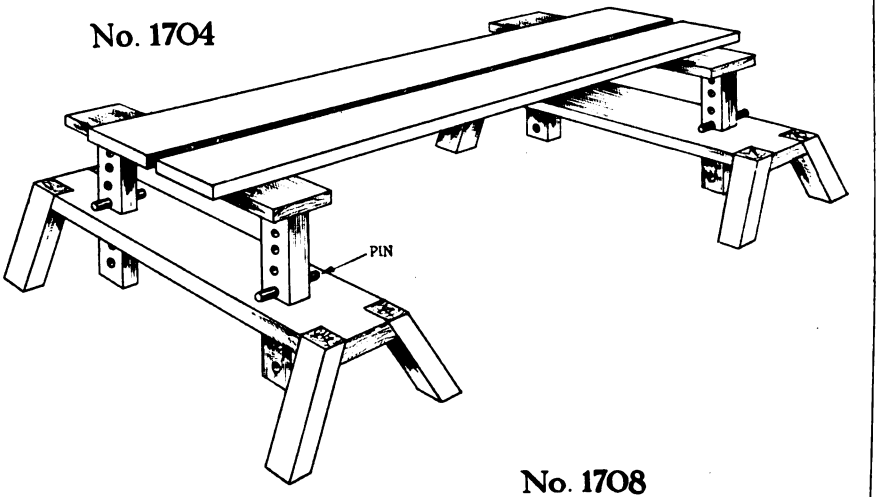
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No. 1702



No. 1708

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Editorial Observation

Good Work

THE work which the War Service Committee of the National Automobile Dealers' Association is doing is good work. This applies particularly to the movement to close service stations and repairshops at night and on Sunday—a movement, by the way, which is spreading rapidly and which gives promise of continuing its spread all over the country. St. Louis started the ball rolling and this week we have reports of Louisville and Chicago following suit.

Any work which conserves man power in these troubled times and which moves in the direction of a form of reorganization which eventually will simplify the work of those who are left to do it can be looked upon as a good work. And it is these two things that the plan of the War Service Committee will accomplish.

In the light of the experience of those who have tried both the new way and the old, it has been nothing but sinful waste and the worst kind of poor efficiency and economy for the majority of dealers to maintain night and Sunday forces of highly paid men to do a lot of jobs which in many cases were mythical, and in others were of such a simple nature that they could generally be taken care of by the owner himself, under the duress of necessity, or at least by much cheaper and less skillful men.

The move to eliminate this waste is a move in the right direction. It is recognition of the need for higher efficiency, for the cutting out of a lot of needless duplication of effort.

Under the new plan, John Smith, motorist, knows that he cannot get a cotter pin inserted at night, or on Sunday, unless it is absolutely necessary; that he cannot get it done for nothing or for a cigar; and that there are only certain specified places in the city where he can get the job done at all, and then only at an expense to him in proportion to the time it takes for the work and the worth of the parts.

Which is good, and as it should be. The general adoption of this plan will mean a very considerable reduction in the overhead of every dealer who becomes a party to it. It will mean the elimination of light, telephone, clerical and labor expense for which the return has always been a matter of question, and will substitute therefore a holeproof system.

Not the least important of the advantages of the plan will be the effect on the car owner. He will, perforce, learn self-reliance; he will do a lot of things himself that he never thought of doing before and for which the dealer in all probability never received adequate, if any, return; and he will learn to have his jobs done during daylight hours, when they ought to be done in the interests of the best service; and last, but not least, the mechanic will get his one day off in seven.

What city will be next in line for such a clean-up of petty troubles?

Harvest Help

WE have heard reiterated so often "Food will win the war" that perhaps some of the significance of the statement may have escaped us. Those who are high in authority assure us of its truth, but they don't always tell us exactly how to apply it to ourselves or our businesses.

It means more than saving food. It means producing more food—not necessarily digging a war garden in the back yard, though this will help mightily; but so arranging our lives that every ounce of man power can be utilized in food production.

Take the case of the States of Kansas and Nebraska. Reports indicate that 36,000 men are needed for the harvesting of the crops. A certain percentage of these men must be skilled in the work; but a large percentage need not be skilled, for this percentage will work under the direction of the skilled men. In other words, it is entirely feasible and quite practicable to take a man out of a repairshop and set him to harvesting grain.

But there is another angle to the situation that must not be overlooked. *If taking that man out of the repairshop and putting him into the fields is going to hold up work on a passenger car, a truck or a tractor—work that ought to be done with the greatest dispatch—then it is wrong to let the man go.* For though he may do the work of one man in the field, he might make it possible for a dozen men to work there by putting a car, a truck or a tractor in condition to transport labor or materials.

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Letters from Readers

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

Mr. Richard, Attention

Editor Motor World: It has probably been nearly 3 years since I have written anything for your columns, and while I have felt myself too busy to write I have not been too busy to read, and after reading the article by Mr. Richard of Toledo in your issue of May 1 I am unable to refrain from making a reply.

If Mr. Richard were in Des Moines he would soon see that automobile mechanics were scarce regardless of salary. The shops here are getting 90 cents or $1 per hour, and some even more for machine work, etc., but when it comes to hiring a man of experience at $20 to $25 per week we haven't any. Twenty-five dollars is the minimum for any one who claims to have had experience, and if he is any good he is getting better than $30.

Suppose the shop does employ 5 men. If Mr. Richard were keeping the books in the office he would soon see that a 5-man shop cannot pay the owner a salary and live, on his suggestion that it brings the owner in $500 per month, and that to offset that they claim a high rent, etc., but the storage usually takes care of the rent.

Making Ends Meet

My 18 months trying to make ends meet in a large garage as floor floorman, storing about fifty cars regular and a large amount of tourists, showed me that had we not had a repairshop to charge up some of our storage to we could not have paid our rent, paid the help and kept up expenses; stop to think how much storage it takes to pay the necessary men to look after it regardless of the number of cars stored.

Mr. Richard suggests that some shops charge the customer for more time than was actually worked on their car. *I am going to suggest here that if I knew I was working for a shop that would do this I would be looking for another place right away, because I would not expect this shop to be in business long enough to pay me to waste my time with them.* My experience in the office end of it is that we never, on big jobs, get all the time that is actually worked, from the fact that there are so many times that some mechanic makes a mistake that costs several hours to correct, which while it is really no one's fault, the owner, if he gets next to it, does not want to pay for that time, and you either give him something in the settlement or lose a customer and probably make a knocker on your place.

As to the inducements to start in the automobile mechanic line—to my notion there is nothing for a man who really wants to do some good in the world that affords more of an inducement than the automobile mechanical line.

We certainly are human enough to want to do things for people that they will appreciate. Then think of the automobile owner who knows little about the mechanical construction of his car; some little thing goes wrong; he rushes to a garage in a hurry; has promised to be at a certain place 15 miles away in 2 hours, and the car has gone bad just at a critical moment; he fears he will miss his promise; it is important; what will he do?

You simply turn her over, find in a minute that she is not getting gas, the line is choked; you fix him up in 20 minutes and send him on his way rejoicing. You are the best fellow he ever met, and he would not allow any other mechanic in the town to work on his car if he could get you. Can you picture anything that would give you more enjoyment in any line?

I have had several lines, and I am free to confess that while I am not an automobile mechanic, I have been around machines and close enough to the business long enough, so I have a number of men that feel that way toward me. It is as fascinating as railroad life 20 years ago. If a man works at the mechanic trade with such an object as this in view he cannot help but appreciate his position.

Sure you will have a few cranks that do not appreciate anything, but forget them.

As to charging a man as much per hour for greasing his car as for overhauling his magneto, I have never been employed in a shop where we did this, and unless the work is done by a high-priced man, the charge should not be at the high rate. This, however, is a small item.

I want to enumerate a few of the things that come to my mind that a garage owner has to take care of with reference to expenses, since only rent has been mentioned: (1) Fire insurance; (2) employers' liability insurance: (3) tornado insurance; (4) protection insurance against loss from accounts you have against cars that might be in your shop and get damaged in a fire; (5) taxes on stock and possibly on the building or ground it stands on in addition to your rent; (6) adjustments of accounts—what you give the customer to make him feel right over errors that are bound to get in; (7) letter heads, envelopes, stamps; (8) technical books, trade magazines; (9) special tools; (10) typewriter ribbons, care of typewriter and adding machine; (11) water, gas, electric current; (12) donations, other than patriotic or Red Cross. While these, of course, cost we are not counting them. And no one knows how much more unless he reviewed his books.

I am not trying to say that there is no money in the business, but I do say that automobile mechanics are scarce regardless of wages paid, and that the business must be economically and properly managed if the owner makes any money.—N. T. Miller, 601 Eighth Street, Des Moines, Iowa.

HEBRON GARAGE
M. B. SPOONER, Proprietor

Make of Car Buick Workman Smith Owner L. Johnson

In	A. M. Time	Out		In	P. M. Time	Out
	7:00		Engine		1:00	
✓	7:15		Generator		1:15	
	7:30		Magneto		1:30	
	7:45		Batteries	✓	1:45	
	8:00		Transmission		2:00	
	8:15		Clutch		2:15	
	8:30		Differential		2:30	
	8:45		Brake ✓		2:45	
	9:00		Wheels		3:00	
	9:15		Pumps		3:15	
	9:30		Radiator		3:30	
	9:45		Springs		3:45	
	10:00		Oil		4:00	
	10:15	✓	Gasoline		4:15	
	10:30		Steering Gear ✓		4:30	
	10:45		Rear Axle		4:45	✓
	11:00				5:00	
	11:15				5:15	
	11:30				5:30	
	11:45				5:45	
	12:00				6:00	

Date 5/20 191.. Total Time 6

Simple form of time card for use of mechanics

Simple Time Card

Editor Motor World: I am inclosing one of our time cards to see what you think of it. We have one for each job each day.

If the man starts on a job at 7:15 he checks in on that time; then at 10:15 he goes on another job and checks out on one slip and in on another slip and so on.

Then he checks after the part he works on, as brakes and steering gear. These slips are all right, we find, as they give the time and what the time was put on without much trouble. What do you think of them? I thought they might help some other fellow.—M. B. Spooner, Hebron Garage, Hebron, Ill.

Thank you ever so much for your

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thoughtfulness in sending us the time card which came with your letter.

This seems an altogether simple and very useful way of keeping track of the time of mechanics and workmen, and we are very glad to have it for the further information of readers of Motor World.

Write us once in a while and let us know how things are going. We always like to have letters from our subscribers.

Applauds Optimism

Editor Motor World: When Mr. Ralph and Mr. Beckwith called on me a couple of weeks ago we were very pleased to write a contract for Hill-Smith Metal Goods Co. for some advertising in Motor World and Horseless Age.

When I discussed with Mr. Greene, advertising manager for the Hill-Smith company, the question of adding Motor World to our list of trade publications, he agreed with me that of all the motor magazines we had been reading purporting to aid the dealer with sound merchandising advice the only one of the bunch that hit the nail on the head in any constructive way was Motor World.

I consider that Motor World's editorials are considerably worth while, and if for no other reason than that the tone of your publication will instill into the dealer a cheerful optimism and good courage we should advertise with you to help along the good work.—Yours very truly, Wood, Putnam & Wood Co., Boston, S. M. Fisher, Production Department.

Used Car Figures

Editor Motor World: On page 31 of your issue of April 24, 1918, I am unable to follow your figures under paragraph 4.

My copy says "to the $685 add $40, which gives $869." You use this $869 again in paragraph 7, and there seems to be a mistake somewhere. When I add 685 and 40 I get 725. I shall appreciate a correction.—Sincerely, C. B. Hoadley. Magnesco Refractory Products Co., Los Angeles, Cal.

You are quite right in your letter of May 20 in assuming that there is an error in the explanation under the used-car chart on page 31 of our issue of April 24.

In paragraph 4 it should say "40 per cent instead of $40." This would give you $274 to add to your $685.

But even then the explanation isn't correct because we find on refiguring it that 40 per cent of $685 it $274, and $685 plus $274 is $959; $959 should therefore be used all the way through the remainder of this story in the place of $869. When this figure is substituted the explanation is correct.

Subtracting the $110 that it will cost to fix up the car from $959 gives $849 and not $659.

Stop Car Stealing

Editor Motor World: For some time I have been contemplating taking up, through the medium of your valuable magazine, the subject of starting a campaign, or crusade, for the purpose of creating a public opinion favorable to the enactment of a law that would eliminate, to a large extent, the stealing of automobiles, which is now so prevalent.

I have an idea, which I believe, if laws could be enacted, would practically put a stop to this, and my plan is this: Whenever a dealer sells an automobile which, in every instance, calls for the securing of a new state license, that a law be enacted requiring him to apply at the same time (for the purchaser) for an identification card, this card to contain the photograph of the purchaser, the state under which the license is issued, when it expires, make of car, license number, engine number, name and address of the purchaser, his signature and the signature of the secretary of state.

On the reverse side of this card will appear a form of bill of sale, this to be filled out by the seller on the re-sale of the car, and to contain the following information:

Name of city, date line, name and address of seller, and statement that he is the lawful and rightful owner of the car, that he is selling and conveying same to the party, giving name and address, license number, engine number, make of car, his signature, which must be executed in the presence of witnesses.

This card is to become the property of the purchaser of the car and to be returned to the secretary of state, together with application for a new license number, with photograph of the new purchaser and new identification card issued, the old card to be retained as a matter of record in the office of the secretary of state.

A plan such as this would practically eliminate the question of automobile stealing because, should a man attempt to forge the card, which could easily enough be done, and it should develop that the car had been stolen, which will be determined immediately upon return of the old card to the secretary of state, you will then have the best evidence against the seller, as you will have his signature, executed in the presence of witnesses, and you also have his photograph, and it certainly would make it difficult for him to get away with it.

If you have grasped my idea and would start an agitation along that line, especially with the American Automobile Association, steps might be taken by which similar legislation might be brought before the respective legislatures in different states.

Thanking you and hoping that you will find it to your advantage to do this, I am, yours very truly, C. E. Larson, Marvel Machinery Co., Minneapolis.

Dear Mr. Larson: It is indeed essential that something be done to check the entirely too numerous thefts of motor cars.

It is a subject that is being given attention by different sources, and it is possible that eventually some plan may be worked out.

The secretaries of the different states have an association of secretaries of state, and they are considering a uniform anti-theft automobile law. This will provide for the more accurate registration of cars, and will furnish identification records somewhat along the same lines as you recommend, although our impression is that there is nothing in this regarding photographing.

The status of this law at present is that it has been considered by the association of secretaries of state, and a draft of the bill has been prepared by the secretary of state of Kansas. This draft is to be passed upon by the remainder of the secretaries at a future meeting, and if it meets with their approval steps will be taken to put the law into force in all the different states. The proposed law has been endorsed by the National Automobile Dealers' Association.

Motor World Helps the Government

Editor Motor World: We have received a copy of the Motor World for March 27, and have noted with a very great deal of grateful pleasure the splendid amount and quality of space given the Liberty Loan by the Motor World, and the great amount and fine quality of advertising space given the loan by certain of your advertisers.

We want to assure you, and we want you to assure your patriotic advertisers, of the very sincere and cordial appreciation of the Treasury Department for this patriotic and effective co-operation and assistance.—Very sincerely yours, Frank R. Wilson, Director of Publicity.

Ten Hours a Day for Harvesters

SALINA, KAN., June 8—Ten hours will constitute a day's work in the Kansas wheat fields and the standard wage scale will be 45 cents an hour, with no extra pay for overtime, according to a decision reached by the Kansas wheat growers in session here. One hundred and fifty representatives were present from twenty-six counties.

No Licenses for Truck Makers

WASHINGTON, June 8—A definite ruling by the Department of Agriculture states that companies manufacturing tractors for farm use will be required to take out licenses under the recent presidential proclamation. Motor truck and trailer manufacturers will not, for the immediate present, be expected to take out licenses. These rulings definitely confirm the report published in the last issue of Motor World.

Gilbreath A. A. A. Michigan Chief

DETROIT, June 8—Captain W. S. Gilbreath, manager of the Detroit Automobile Club, has been appointed Michigan representative of the contest board of the American Automobile Association, succeeding W. D. Edenburn, who has directed Michigan races sanctioned by the A. A. A. since 1915.

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The RETAIL NEWS

SOUTHWEST

F. H. M. Stephens and **H. J. Hamilton**, Nogales, Ariz., have bought the Santa Cruz Garage.

The A. L. Hendricks Motor Co., Fort Smith, Ark., is building an addition to its salesroom.

Gronacher & Triesch, Fort Smith, Ark., are building an addition to the Dodge Garage.

The R. A. Cook Automobile Co., Little Rock, Ark., will move soon to its new building on Seventh and Louisiana Streets.

The Hill-Howard Motor Co., Arkansas City, Kan., is constructing a new building.

C. E. Hood, Emporia, Kan., has bought the garage of A. E. Wickstrom.

J. C. Newman, Eureka, Kan., has opened a tire shop.

Baumgarten & Brochinski, Goodland, Kan., have bought the garage of Harry Kelly.

Tucker & Son, Greensburg, Kan., have enlarged their garage.

J. M. Vreem, Hutchinson, has opened a tire shop.

Ed Timmons and **Joseph Barker**, Independence, have bought the Wiswell Garage.

Roy Harman, Macksbille, Kan., has opened a repairshop.

The Krug Automobile Co., Marysville, Kan., has leased the John L. Schiek Garage.

R. R. Parker, Osawatomie, Kan., has sold his garage to Dale Newhouse.

C. A. Hempler, Phillpsburg, Kan., has opened a vulcanizing plant.

The C. & A. Auto Co., Pittsburg, Kan., has completed the installation of a vulcanizing plant.

J. O. Robert, Salina, Kan., has bought an interest in the Redman Garage.

J. C. Jordan, Savonburg, Kan., has sold his garage to the Nelson Bros. Garage Service Co.

The Dimond Auto Co., Smith Center, Kan., has taken over the Dimond & Faulkner Automobile Co.

V. J. Elwick, Solomon, Kan., has opened a vulcanizing shop.

W. J. Brookman, Wichita, has opened the Wichita Tire & Supply Co.

J. E. Bumstead, Wichita, has bought Harry Myers' Garage.

E. C. Stuckey, Wichita, has bought a half interest in the W. C. Pryor Garage.

E. S. Berry, Caruthersville, Mo., has sold his interest in the Caruthersville Automobile Co. to Helm, Bay & Haynes.

The Liberty Garage, Independence, Mo., is enlarging its quarters.

The Joplin Auto Co., Joplin, is enlarging its quarters.

Burns & Elwell, Knob Noster, Mo., have bought the Kendrick Garage.

Clarence Duncan, Lamar, Mo., has leased the A. M. McCrea Garage.

Ed Crane, Neosho, Mo., has bought the Home Garage.

The Interstate Auto Co., St. Joseph, has bought an interest in the Holliday Motor Car Co.

Dick Boehme, Sedalia, Mo., has bought the La Grande Garage.

H. A. Potter, Chandler, Okla., has opened a new repairshop.

The Wilson Automobile & Necessity Co., New Wilson, Okla., has opened for business.

The W. B. Miller Motor Co., Okarche, Okla., will move to a new building.

F. J. Laws, Pawhuska, Okla., has bought the garage of W. G. Ashton.

Ted Beall, Texhoma, Okla., has sold his interest in the Texas Garage to J. A. Powelson.

The Sleeper Motor Co., Tulsa, Okla., is moving soon into its new building on South Main Street.

The Service Motor Truck Co., Tulsa, Okla., has begun the erection of two buildings.

The W. C. Motor Sales Co., Tulsa, Okla., has remodeled its salesrooms.

New Garages

Nicholas & Branstetter..Baxter Springs, Kan.
Chas. A. Dempsey.....Baxter Springs, Kan.
Vincent & Bruner.....Burns, Kan.
Thos. L. Hodges.....El Dorado, Kan.
Albert Collins .....Garnett, Kan.
L. C. Van Arsdale (addition)..Gridley, Kan.
F. Lindsey .....Iola, Kan.
Walter Dial .....Hardtner, Kan.
Camer & Haviland.....Kimball, Kan.
Frank Briand .....Lincoln, Kan.
Emory Tipton .....Minneapolis, Kan.
Jackson & Hearn.....Nekoma, Kan.
E. H. Brenton.....Westmoreland, Kan.
S. J. Waitman .....Wichita, Kan.
Alex. Burnett .....Clarence, Mo.
F. S. Hunefelt.....Cole Camp, Mo.
Tom Chatman .....Illmo, Mo.
Barker's Garage Co.....Arnett, Okla.
G. M. Carter.....Okmulgee, Okla.
C. C. Cole.....Tulsa, Okla.
McMurray Garage.....Vinita, Okla.
Keith & Hudson.....Granbury, Tex.
J. H. Harper & Son.....Kosse, Tex.

NORTHWEST

Louis Formanek, Belle Plaine, Iowa, has bought the tire business of Luther Plumb.

Clarence Iseminger, Colfax, Iowa, has leased the repair shop of the Tomlinson garage, Valreria, Iowa.

John Hogebohm, Ft. Dodge, has sold his garage and joined the army.

F. O. Peterson, Ft. Dodge, has bought the Guarantee Vulcanizing Co.

Leo H. Nokes, Sac City, Iowa, has sold his vulcanizing business to Manly G. Martin.

Rudy Marek, Fremont, Neb., has sold the Fremont Garage to the Mercer Auto Parts Co., which will in future be styled Fremont Garage Co.

New Garages

Cheney and Turnbull Tire Co..Spencer, Iowa
Robert Brimmer.....Swea City, Iowa
Howard Ward.....Traer, Iowa
Sanders County Motor Co.....Wahoo, Neb.

EAST

George Leghorn, Boston, Hupmobile dealer, has taken on the Standard truck.

Bowen, Sanders & Dunbar, Boston, has added the Vim.

C. S. Ransom, Boston, has added the Maccar truck.

C. S. Henshaw, Boston, Dodge Brothers dealer, has added the Graham unit.

The Merchants Motors, Boston, has taken on the Acason truck.

The Signal Truck Co., Boston, has added the Clydesdale.

The Liberty Street Garage, Newburg, N. Y., has added the Koehler truck.

The American Taximeter Co., Fifty-seventh Street and Broadway, New York, has moved to larger offices and salesrooms at 16 West Sixty-first Street.

The Prudential Tire Service, Inc., has opened a salesroom at 121 East Avenue, Rochester.

The Columbia Tire Co. has opened a salesroom at 189 East Avenue, Rochester.

The Terwilliger Equipment Co., Philadelphia, has added the Koehler truck.

MIDDLE WEST

R. M. Morgan, Galesburg, Ill., has sold his garage, "The Square," to M. J. Babbitt, Abingdon.

V. O. Coggins, Hopedale, Ill., has sold his garage to C. D. Crawford.

The Mackemer Co., Peoria, Ill., has purchased the Ford agency of the Dickerson-Lehmann Co. The latter company will hereafter handle only the Oldsmobile.

W. N. Gobel has opened a tire shop in Blissfield, Mich.

The Acme Truck Sales Co. has opened salesrooms in Grand Rapids. W. F. Martin is manager.

Amos Gezon, for several years a partner in the Chandler Motor Car Agency, Grand Rapids, has purchased the interests of his associates and with Clark Raymond will continue the business at the present location.

S. A. Dwight has been appointed agent for the Crow-Elkhart car in Grand Rapids.

George B. and Virginia McQuellan have taken the sales agency for the Detroit Electric in Jackson, Mich.

W. J. Chisholm, Mount Clemens, Mich., has purchased his partner's interest in Chisholm & Miller and will continue the Dodge Brothers agency and accessory business in the same location.

Martin Steger, Monroe, Mich., and J. C. Strickland, Cleveland, have purchased the interests of Fred Neid and Louis Laprad in the Monroe Implement and Tractor Co. at 134 East Front Street, Monroe.

Manley-Thompson Co., Tacoma, Mich., has moved to its new building. On the lower floor of the building are show rooms, offices and stock department. The second floor is equipped as a shop and service department. On the top floor are the storage and used-car departments.

The Schumann Motor Co., Menominee Falls, Wis., Ford dealer, has sold its branch at Cedarburg, Wis., together with the Ford agency, to John Lauterbach, who has been manager of the branch. The company will sell the Fordson tractor.

The Ph. Gross Hardware & Supply Co., 216 Third Street, Milwaukee, jobber and retailer of accessories and supplies, on May 27 celebrated its fiftieth anniversary. The business was founded in 1868 by Philip Gross, who now is 82 years old, but is still active in the management.

Herman A. Netter, head of the Netter, Heiser Co., 704 Grand Avenue, Milwaukee, Ford dealer, has been appointed Milwaukee and Racine County distributer of the Fordson tractor, and will conduct the business under the style H. A. Netter & Co.

F. A. Goold, Montfort, Wis., has sold his garage and repairshop to Albert Dahl and Frank Reinke, who will conduct it under

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the style Dahl & Reinke. Mr. Goold will take charge of the welding and tire repair departments and deal in specialties for Fords.

New Garages

Bush Garage.....Joliet, Ill.
L. K. Edwards.....Escanaba, Mich.
Oakland Garage.....Portsmouth, Ohio

PACIFIC COAST

The Hollywood Auto Electric Co., Hollywood, Cal., has moved to a new building.

C. N. Bank, Hollywood, Cal., has installed a Hobbs battery service station.

The Tire Construction Co. has opened a branch at 629 State Street, Los Angeles.

The California Garage, Oxnard, Cal., has been purchased by L. C. Drake, formerly in charge of the Ford Service Station.

The Oxnard Vulcanizing Co., Oxnard, Cal., has remodeled and enlarged its building.

Herbert Hedges, Oxnard, Cal., operating the Willard Storage Battery Service Station, has erected a new building on A Street.

The Oxnard Implement Co., Oxnard, Cal., has added a tire department and will specialize in tractor service.

The Leach-Frawley Co. has moved from Geary Street to the building formerly occupied by the Cole Agency on Van Ness Avenue, San Francisco.

The San Francisco Tire Co. has remodeled and enlarged its salesrooms at 640 Van Ness Avenue, San Francisco.

The Over There Tire Co. has opened salesrooms at Turk Street and Van Ness Avenue, San Francisco.

The Bearings Service Co., San Francisco, has moved to new quarters on Van Ness Avenue.

C. H. Stone has opened a vulcanizing plant at 317 Van Ness Avenue, San Francisco, and will distribute United States tires.

The Pacific Pipe & Supply Co. has opened salesrooms at 706 Van Ness Avenue, San Francisco, for De Leon tires and Palmer tubes.

S. W. Piercy has purchased the vulcanizing plant at 418 Golden Gate Avenue, San Francisco, and will conduct it under the style Piercy Tire Co.

A. Ketchel has purchased the interest of J. W. O'Bryant in the Ellis Auto Repair Shop, San Francisco.

Kahn & Keville have moved to 982 Post Street, San Francisco, and have added an Eveready Storage Battery service station and salesroom.

T. S. McCheseney has opened a branch store for the Tire Construction Co. of Los Angeles at 629 State Street, Santa Barbara.

The Modern Vulcanizing Co. has moved to new and larger quarters on Higuera Street, San Luis Obispo, Cal.

The San Luis Auto Electric Works, San Luis Obispo, Cal., has moved to new quarters on Higuera Street.

J. A. Milne has moved from Los Angeles to Santa Barbara and will operate a vulcanizing shop and Federal tire salesroom on West Corilla Street.

Charlesworth Brothers have opened tractor salesrooms in Santa Barbara.

Harold L. Arnold has opened branch salesrooms at 1129 State Street, Santa Barbara, for Hudson and Maxwell cars.

M. A. Durkee, Nash and Cadillac dealer, has moved to a new building at 302 State Street, Santa Barbara.

William Elliott has purchased the business of the California Rubber Co., Santa Barbara.

Wood's Garage, Santa Barbara, has added a department for tractor service. H. Wood, Jr., has secured the agency for the Sandusky tractor.

Freeze & Freeze, automobile accessory dealers in Santa Barbara, have added vulcanizing equipment.

O. L. Petzel, recently appointed Ventura county distributer for the Chandler, has opened salesrooms in Magby's Garage, Ventura, Cal.

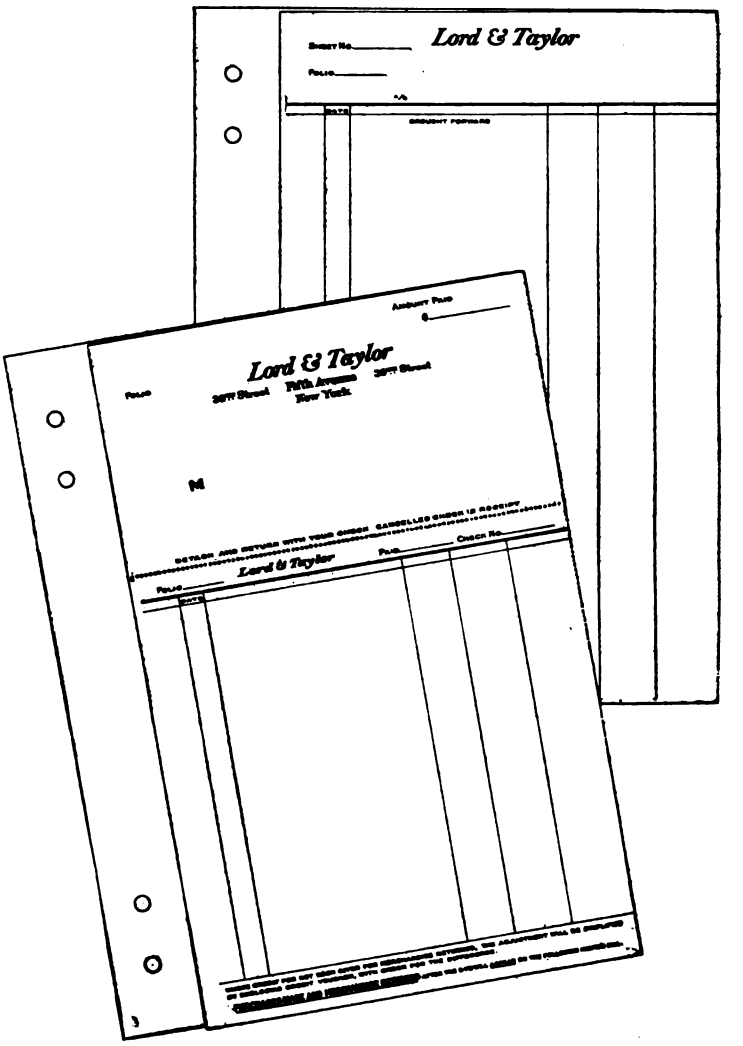
The Hutchinson Motor Exchange, formerly of Winfield, Kan., has moved to Oxnard, Cal., and has leased a new building for salesroom and service station for the Overland line and G. M. C. trucks.

The White Garage, Ventura, Cal., has been purchased by P. M. Ranger.

New Garages

El Camino Real Motor Car Co. Garage (addition).....San Francisco
The People's Service Station San Luis Obispo, Cal.

Charles S. Pike has been appointed sales manager of the new truck division of the Paige-Detroit Motor Car Co. He came to the company from the Burroughs Adding Machine Co., Detroit, 2 years ago to take charge of sales promotion of passenger cars when a department for this work was organized.



WITH a 3-cent postage rate it is more than ever desirable to minimize the amount of money spent on postage. The necessity and the expense of sending out receipted bills may be almost eliminated by the simple device used by Lord & Taylor, one of the largest department stores in New York.

The original of the bill is perforated and there is a request on the upper half: "Detach and return with your check; cancelled check is receipt." The customer keeps the remainder of the bill as his record. This bill is made out in duplicate, the original being filed in a binder as indicated by the punched holes.

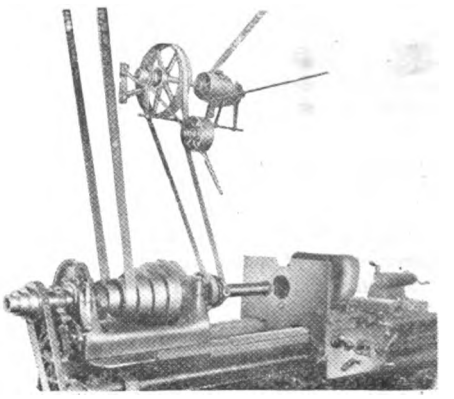
Where a customer insists upon a receipt, the lower half of the bill is signed and returned and the upper half is retained for a cash voucher and for posting purposes. The other form is used as a second sheet where the items of a bill are too numerous to be contained entirely on the first sheet.

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Accessories

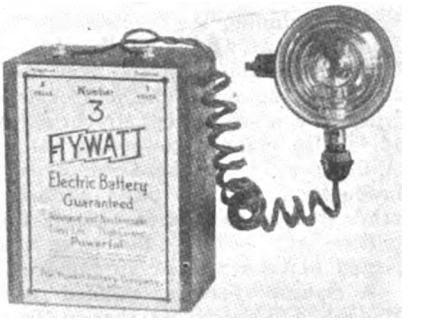
ACME CYLINDER GRINDER

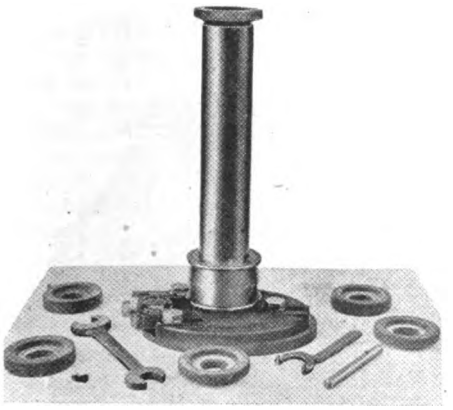
A complete cylinder grinding outfit to be attached to a lathe and so designed that the cylinder block is clamped to the angle plate on the rest and the grinding wheel is mounted on a special face plate eccentrically so that the spindle of the wheel travels around in a circle. The eccentricity of the spindle determines the size the cylinder is ground to and this is adjusted by a micrometer screw and index. A separate countershaft with idler pulley is used for the grinding wheel. Made in two models. Model A will grind cylinders from 2⅞ in. up and any length up to 12 in. Model B is specially made for motorcycle cylinders and will grind from 2½ in. bore up, and any length up to 9 in. Model A sells for $165 complete with angle plate and countershaft. Deductions for these are allowed if not wanted.—Continental Grinder Co., Minneapolis.



HY-WATT TAIL LIGHTING OUTFIT

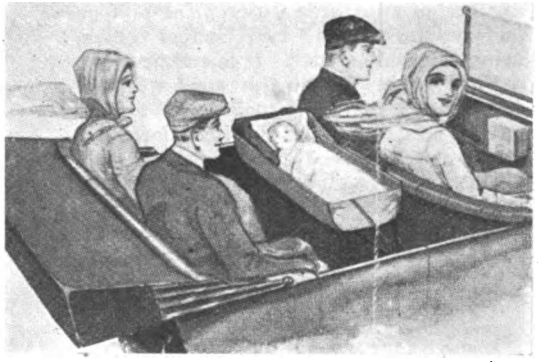
A tail-light outfit for trucks, Fords and other vehicles, consisting of a Hy-Watt battery, tail lamp which can be furnished in different styles and types to show either a red or a white light, and the connecting wires between the battery and the lamp. The battery being waterproof, does not have to be protected from rain. Price of complete outfit, $3.25.—Hy-Watt Battery Company, Cleveland.





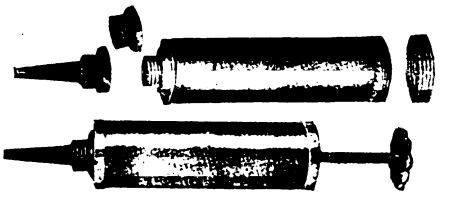
BABY CARRIER

A baby carrier which is hung over the back of the front seat of the car. When not in use it can be folded. Fits any model touring car. Made in 32, 36 and 42-in. lengths, the 32-in. size selling for $8 and the others for $9.—C. A. Hamilton, 250 West Fifty-fourth Street, New York City.



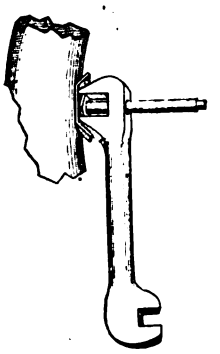
SHIELDS GREASE INJECTOR

A grease gun which is loaded by inserting a cartridge containing 1½ lb. of grease. The cartridges fit inside the gun and the containers are made of a material that will not allow the grease to come through; the cartridge is clean to handle. The injector is made of steel, finished in black enamel with nickel-plated ends and handle. The screw has a square thread. Price $2.50 for the injector and 40 cents each for the cartridges filled with grease.—Wheless-Wilson Auto Supply Company, Shreveport, La.



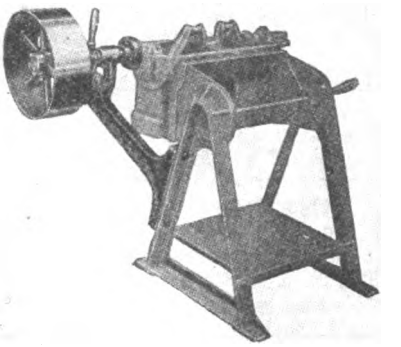
PERFECT VALVE WRENCH

This little wrench has been developed for the vulcanizer or tire repairshop and is for the removal and replacement of the entire valve. The wrench is milled out of cold-rolled steel and case hardened; it is 6¾ in. long and fits both standard sizes. List price $1.25.—Lewson Mfg. Co., Portland, Me.

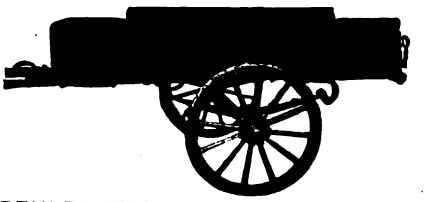


ECO ENGINE STAND

The Eco engine stand is made only for Ford engines and will hold the engine in any position for overhaul work. It is made of cast iron and steel finished in dull enamel and weighs 50 lb. There is a power attachment for running in the bearings, which is supplied complete with a pulley for belting to line shafting. Price of complete outfit, $35; power attachment alone, $15.—Western Mfg Co., Oskaloosa, Iowa.



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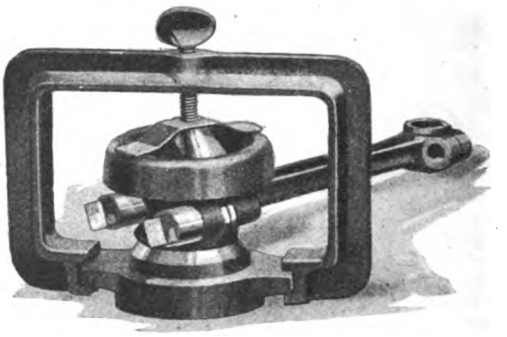


BEHLEN TYPE A TRAILER

A two-wheel trailer of 800 lb. capacity with circle front body, artillery wheels, solid tires and semi-elliptic springs with five leaves. It is fitted with the Behlen quick-hitch universal draw bar. Wheels have ball bearings. Price $150.—Charles Behlen Sons Co., Vine and Fifteenth Streets, Cincinnati.

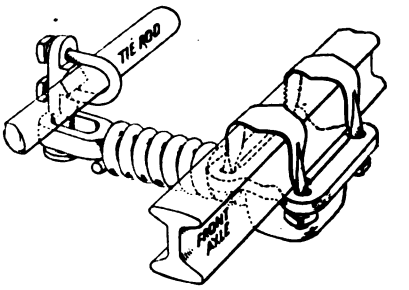
BABBITTER FOR FORD RODS

A complete outfit for rebabbitting the connecting rod bearings of Ford engines. The equipment consists of a small machine into which the connecting rod is clamped. The babbitt metal is cast to exactly the proper size to fit the crankshaft and the job is accurate to within .001 in. Four connecting rods can be babbitted per hour. A slightly larger size is made and sold with complete equipment for rebabbitting the bearings in any engine. — Burlington Machine Works, Burlington, Iowa.



D & O ANTI-WOBBLER FOR FORDS

A spring-operated device to bring the front wheels of Fords back to a straight-ahead position after turning and to prevent wobbling of the steering wheels on rough roads. A spring arm is attached to a pivot, the base of which is clamped over the front axle, and the end of the arm engages a lug clamped on the tie rod. A slot in the end of the arm allows for variation of distance between the axle and tie rod as the rod moves from side to side. Put on with bolts through the clamps and no drilling or machine work required. Price $4.50.—G. H. Dyer Co., Cambridge, Mass.

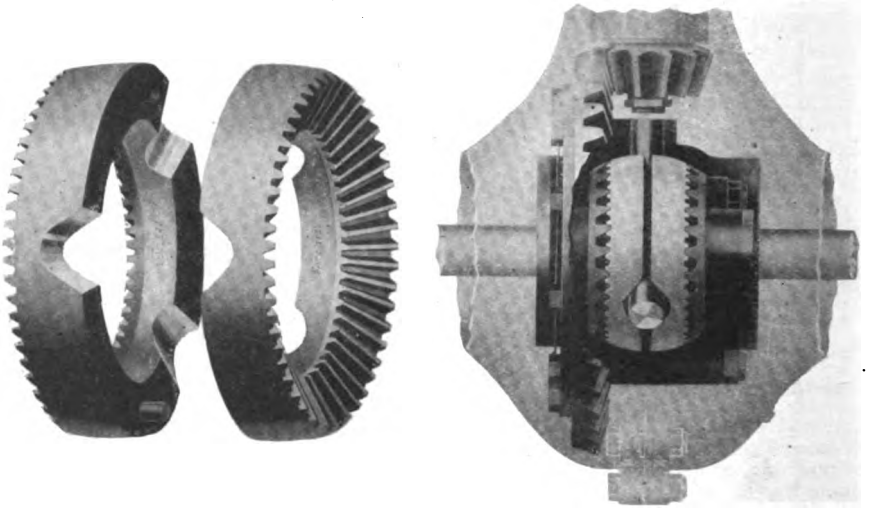


Badger "Two-Wheel-Drive" Differential

The Lewis Differential Co. of Milwaukee is beginning the manufacture of the Badger "two-wheel-drive" differential. This differential is of the type designed to obviate spinning and loss of traction when one wheel is on slippery ground. It is also claimed to prevent skidding. A differential for the Ford car will be produced first, and sizes suitable for other cars as fast as manufacturing facilities will permit. Six sizes are expected to take care of all requirements.

A special feature claimed for the Badger differential is that it is much simpler to install than similar devices that have been placed upon the market previously. To install it in the Ford car, for instance, requires only the taking out of the three differential pinions and putting in the two Badger gears, using the same spider. It is claimed that a Ford owner can do the work with his regular set of Ford tools, and that a garageman can make the installation in two to three hours.

The principle of operation may be understood by reference to the illustration. It will be seen that the Badger gear set consists of two gear rings which are placed back to back, each of which has three slots of peculiar form cut in its back edge. The walls of these slots serve as face cam surfaces, engaging with the driving pins of the differential. The inclination of the cam surfaces is such that motion can be transmitted through them in one direction only. In turning corners, of course, all of the power is transmitted through the inside wheel.



The Badger gear rings and a differential in which they are installed

Investigate Alcohol-Gasoline Blends

NEW YORK, June 8—With a view to gathering statistics and other information which will be of value in exploiting the use of mixtures and blends of alcohol and gasoline for use in internal combustion engines of every type, the National Automobile Chamber of Commerce is instituting a series of investigations. It is at present gathering data on processes of manufacturing alcohol and on the cost of production. Investigations are also being made to ascertain whether the distilleries and breweries of the country are disposed to go into the production of alcohol on a large scale.

The N. A. C. C. states that alcohol can be blended with gasoline to produce a suitable fuel that will avoid the difficulties of starting a cold engine on alcohol alone and without any change in the carbureter or the compression of the engine. At the present time practically all automobiles in Norway and Sweden are operating on alcohol made from waste from sulphite liquor from paper pulp mills.

Do You Want Farm Work?

WASHINGTON, June 10—Western harvest cutting will start about a week earlier than last year, and will require 36,000 men from outside sources. Six thousand men will be needed for Oklahoma and 30,000 for Kansas. The United States Employment Service is in charge of the situation.

Wages in the main wheat belt are $3.50 per day, with board, to harvest hands in Oklahoma, and $4 to $5 per day, with board, to harvest hands in Kansas. Stackers will receive higher wages. There is a movement on foot to pay the men by the hour, with wages running from 40 cents to 50 cents per hour, with board.

Any one desiring to secure farm work can apply at any of the offices of the United States Employment Service, located in nearly every city in the country.

Wolverine Planning New Model

SAGINAW, MICH., June 10—The Wolverine Tractor Co. is formulating plans to manufacture a four-wheel drive machine with a track-layer attachment. Production is expected to begin in September.

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Moline Develops Four-Cylinder Tractor

Model D Has New Valve-in-Head Engine and Electric Starting, Lighting and Engine Governing System

EVEN at this early date there is a good deal of "sameness" in motor tractor design. Most tractors are of the four-wheel drive, and making an exception of the final drive the general arrangement of parts is very much alike on all of them. But the Moline Universal tractor is a type apart bristling with points of originality. The Universal tractor has been on the market now for nearly two years. Its most characteristic feature is that it has only two wheels and that the operator sits on the implement which is being pulled, from which he controls the tractor.

A two-wheeled tractor possesses one important inherent advantage over a tractor in which the weight is distributed over a greater number of wheels. In connection with tractor design the statement is often made that there is no object in trying to save weight, as you need weight to secure traction. Well, only the weight supported by the drivers counts, and if 98 per cent of the weight of the tractor can be made available for traction, instead of the usual percentage of about 70, then the weight of the tractor can rationally be reduced by such expedients as the use of alloy steel in all shafting without fear of lack of traction under different conditions. A saving in tractor weight means a saving in power and, consequently, a gain in fuel efficiency.

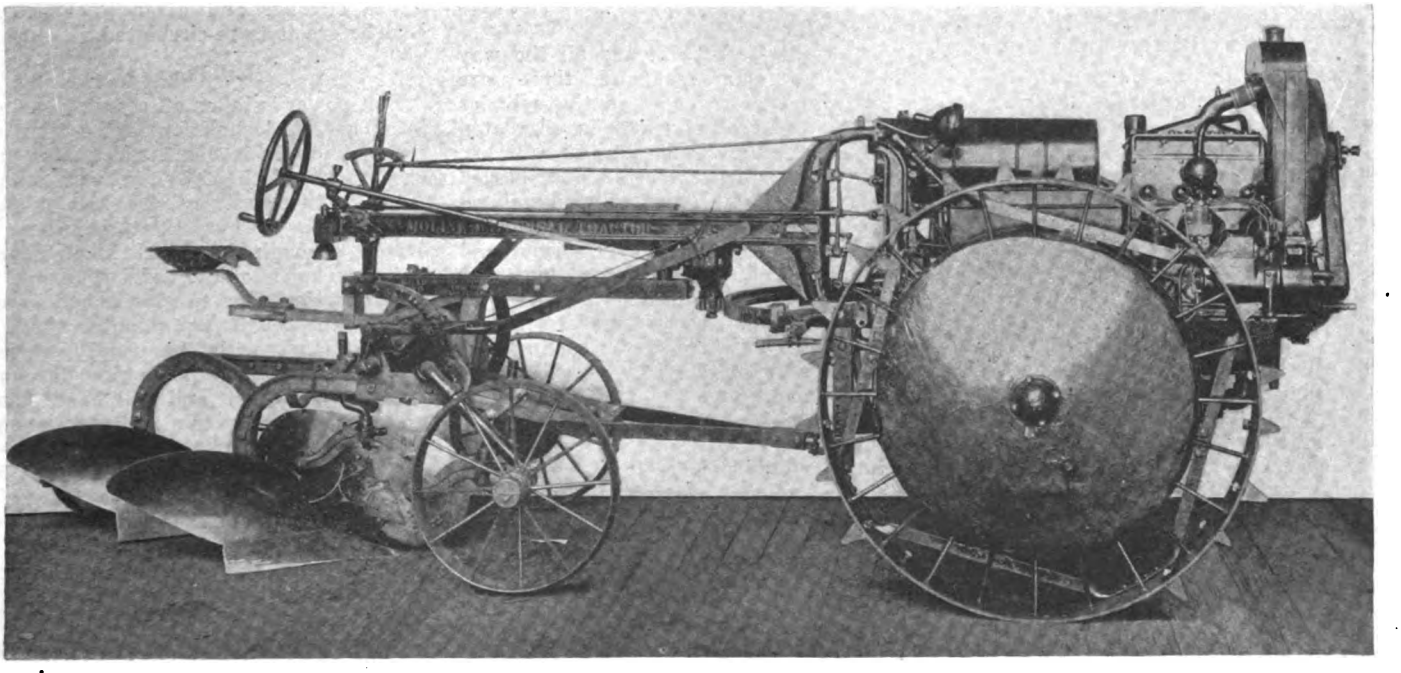
The engine of the Model D is of the company's own design and manufacture. It is of the four-cylinder type with valve-in-head cylinders, of 3.5-in. bore and 5-in. stroke. There are only two main bearings on the crankshaft, which is of unusually large dimensions. The cylinders are cast in a block, together with the upper half of the crankcase, while the cylinder heads form a separate casting.

The crankshaft is of exceptionally rugged construction, all bearings being 2½ in. in diameter. The object in using the two bearing type of crankshaft is to make the engine as compact as possible lengthwise. It is claimed that, owing to the large size of the bearings, there is very seldom need for adjustment of same, and when adjustment is required it can be easily made. The combined length of the two main bearings is 5⅞ in.

Pistons are of cast iron, with the usual ribs between the piston bosses and the piston head. The connecting rods are I-section drop forgings, and are of unusual appearance, owing to the large size of the heads. The upper end of the rod is clamped tight to the wrist pin, which latter has its bearings in the piston bosses. The crankpin bearings are bronze backed nickel babbitt bearings, and they can be taken up by merely removing the bottom plate of the crankcase. The connecting-rod caps are held in place by means of alloy steel bolts with castellated nuts. The piston pins are also made of alloy steel and are ground to size. They bear directly on the cast iron of the piston bosses. For this feature the advantage is claimed that more efficient lubrication can be obtained than if there were a bearing in the connecting-rod end, besides which the bearing surface is about 50 per cent larger. The pistons are light in weight, and are all equalized so as to reduce vibration to a minimum.

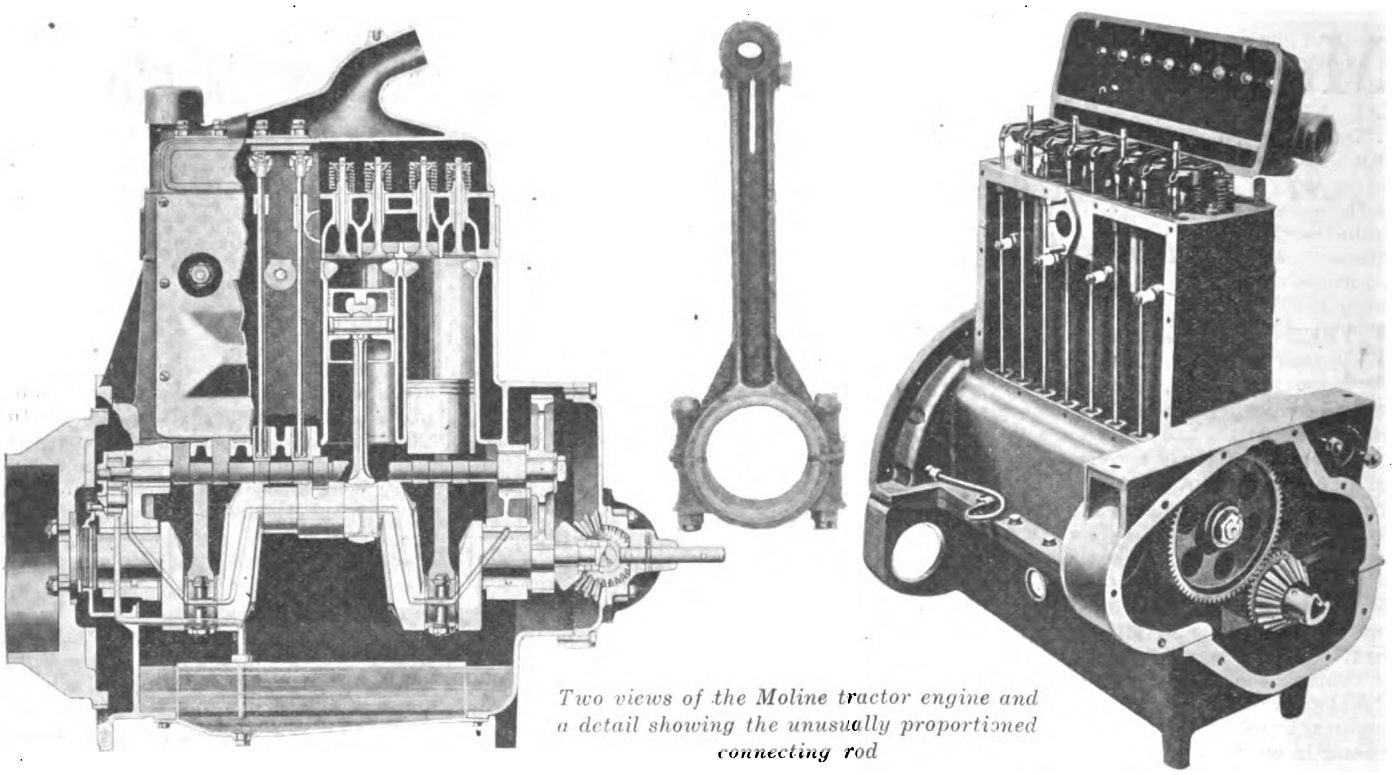
A one piece drop forged steel camshaft, 1½ in. in diameter, is used. All of the cams are forged integral with the shaft, are hardened and ground to shape, and the shaft is supported in three bearings. The camshaft gears are of wide face, and are cut with helical teeth to insure quiet operation.

Considerable attention has been paid to the design of the valve gear. The valves themselves are made of a chrome-nickel alloy steel, and are surrounded by two coiled springs each. The use of double springs is a safety measure, as the breakage of a single spring will not prevent the engine from operating. It is also claimed that this arrangement of springs makes it possible to open and close the valves quickly, and still insure smooth seating of the valves. The Brush type of tappet lever is used, which has a self-lubricating spherical pivot support adjustable from outside the valve hous-



Four-cylinder Moline tractor with Moline two-bottom plow hitched to it

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Two views of the Moline tractor engine and a detail showing the unusually proportioned connecting rod

ing. This tappet lever has arms of unequal length and multiplies the cam motion by two. The ball and socket joint of the rocker arm is both hardened and ground, and so arranged that the joint is full of oil at all times, thus insuring long life of the bearings. The valves have a clear diameter of 1¾ in., which is equal to one-half the cylinder bore.

Gasoline is the fuel used on Moline Universal tractors. The fuel supply is carried in a 15-gal. tank, cylindrical in form, which is located in a high position directly behind the engine. A Holly carbureter is used, which draws air through a new type Bennett air cleaner, to insure that all dust and grit are removed from the air before it enters the cylinders.

Remy Battery Used

Ignition is by the Remy battery system, which forms a part of the electrical equipment, all of which is of Remy make. The generator of this system, in addition to generating electric energy for charging a storage battery and operating the electric starter and lights, also serves as an engine governor. A Willard battery is used in connection with the electric system. The governor-generator is driven from the helical camshaft gearing.

It is claimed for this governor that it does not flutter or hunt, but works perfectly, governing the speed of the engine under varying loads on the belt and in the field. One point in respect to which the governor differs from the conventional flyball governor is that there is no one particular speed to which the engine is held, as by means of a control box underneath the steering wheel the speed of governing can be varied within wide limits. The battery is carried in a stamped steel, waterproof case, which is spring suspended to relieve it from sudden jars and shocks. As regards the lighting equipment, the tractor is provided with a movable headlight, which can be set in any position, and also with the lights on the control box in the rear, which illuminates the plow. All wires are carried in armored conduits, and the entire system is waterproof. The control box underneath the steering wheel contains a switch for controlling the ignition and the lights. By pushing the clutch lever forward, the starting motor is thrown into operation by means of a Bendix drive. Thermo-siphon circulation of the cooling water is employed. The water passages in the engine jackets and the radiator are of unusually large size. This system of cooling is said to have proven satisfactory under the most trying conditions.

The water-jecket extends all the way down the cylinders, and there are also large water spaces in the cylinder heads. The cooling water is circulated through a large Modine-Spirex radiator, in front of which there is a four-bladed fan mounted on Hyatt roller bearings. This fan is surrounded by a housing which increases its cooling efficiency and protects it against mechanical injury. It is driven by an inclosed endless woven belt, the tension of which may be readily adjusted. The whole of the cooling system has a capacity of 3 gal. The radiator is mounted on the forward part of the tractor, in a high position, where it is out of the dust, and it is protected from weeds and leaves by a heavy wire screen.

A full force oiling system is used, oil being forced under pressure to all crankshaft bearings. The oil pump is driven from the rear end of the camshaft, and forces oil under 35 lbs. per square inch pressure into the rear crankshaft bearing. The crankshaft is drilled out, as indicated in the sectional view of the engine, and through it oil is carried to the several crankpin bearings and to the forward main crankshaft bearing. A separate lead from the oil pump carries oil under pressure to the camshaft bearings. The pressure employed is higher than usual in force-feed systems, and it is claimed that all the crankshaft, connecting-rod and camshaft bearings float on a film of oil, so that it is impossible for the babbitt and steel to touch. The oil thrown off by the rapidly rotating crankshaft forms an oil mist, which lubricates all interior parts of the engine, the belt pulley drive gears, the camshaft gears and the entire valve mechanism. All excess oil returns to the base chamber, where it is strained through a large gauze strainer and given a chance to cool before it is re-circulated.

Belt Power

Belt power is taken off a pulley located in an accessible position in the front of the engine. It is 9 in. in diameter and has a face width of 6½ in. with ample crown. The shaft of the belt pulley, which is mounted on Hyatt bearings, is driven through hardened steel gears. This gearing is of the bevel type, and is so proportioned as to give a belt speed of 2500 to 3000 ft. per minute, which is in accordance with the usual practice. It is claimed that the engine develops 18 hp. on the belt, and will handle any farm machinery up to a 24-in grain separator.

A Borg & Beck dry-plate clutch is located in the flywheel. This clutch is well known to our readers, and need not be described here. The transmission is inclosed in a rigid, one-piece cast-iron housing, which holds all bearings in perfect alignment. All of the shafts in the transmission and final drive are splined. In fact, there are seven splined joints in the transmission, and one pinion is formed integral with the shaft.

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A plan view of the transmission layout is shown herewith. There is a sliding pinion on an extension of the clutch shaft. This is adapted to engage either with a gear on the secondary shaft or with an intermediate pinion for obtaining the reverse motion. On the secondary shaft is carried a bevel pinion, which meshes with a bevel crown gear on the differential. It is the bevel pinion which is formed integral with its shaft. Ball thrust bearings are provided on both the secondary shaft of the transmission and on the differential shaft to take up the thrust due to the bevel gear set.

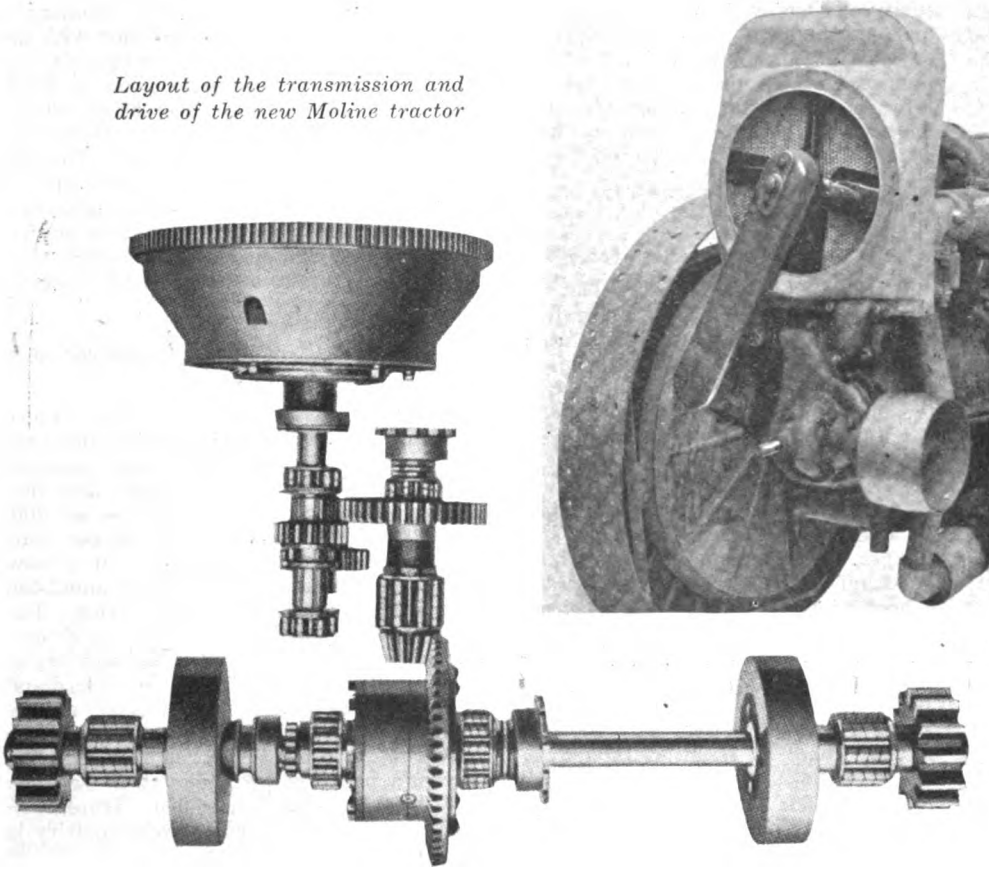
The differential is of the bevel pinion type, containing four bevel pinions. Its master gears are splined to the differential shafts, and to the outer ends of these shafts are splined the bull pinions. This method of securing the bull pinions to their shafts makes it easy to remove them. Anti-friction bearings are used throughout the transmission and drive, there being 15 Hyatt roller bearings and eight ball bearings on the tractor. The entire drive from the engine to the ground is carried on Hyatt high duty roller bearings, which are protected from dust and dirt, and run in an oil bath to insure their lubrication. A feature of considerable importance is a differential lock by means of which one of the differential shafts is secured rigidly to the differential housing. The operation of the lock is performed from the seat. The possibility of rendering the differential gear inoperative is of considerable value when the tractor has to work on slippery ground. The final drive is by bull pinions and internal gears, the latter being secured to the driving wheels, as is plainly shown in one of the end elevations herewith.

All the main connecting parts of the tractor and engine which go to make up the general frame work are held together by bolts, which clamp two faces together, one of which has a heavy circular flange. This flange fits closely into a machined shoulder, taking away any tendency to shear off the bolts. The engine is fitted to the transmission in this manner, and the right-hand axle arm, the right-hand differential shaft arm, and the right and left-hand bull pinions bearing containers are secured in the same way.

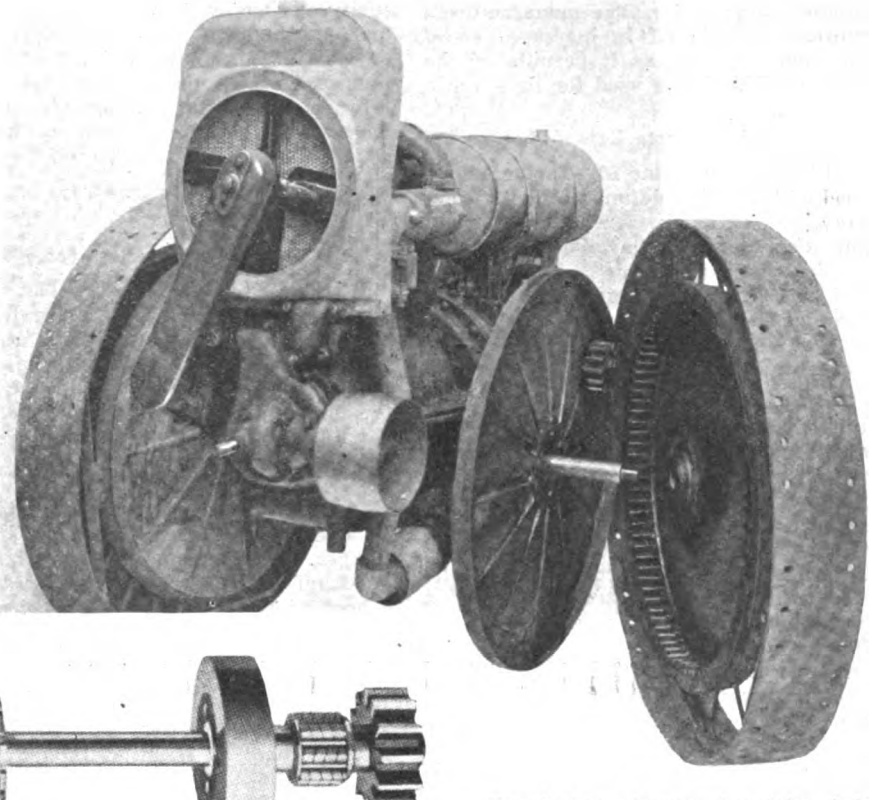
Inspection plates are provided on the transmission, clutch and other housings, and enable the operator to get at all important parts readily. On the differential shaft, between the differential shaft and the bull pinions, there are two brake drums, on which act internal expanding brakes, which are controlled from the seat. These brakes serve not only for stopping and holding the tractor, but they also perform a function in connection with the steering. By pushing forward on the brake lever, the right-hand brake is engaged, which permits the tractor to be turned easily toward the right; by pulling back on the lever, the left-hand brake is engaged, which permits the tractor to be turned easily to the left. There is, of course, a special steering gear for steering the tractor, but by means of the brakes the effort required to steer in loose ground can be considerably reduced, which is of importance when the tractor is being operated by a boy or woman.

The bull gears are cast of semi-steel; they are of the internal type and are completely inclosed. Heavy gear grease is introduced through a hole in each inclosing shield, which has a sliding cover. This grease lengthens the life of the bull gears, and forms a seal at the edge of the shield to keep out the dust. The bull pinions are also mounted on Hyatt roller bearings.

While the Moline tractor is designed as a two-plow machine, it is capable of operating at considerably higher speed than the average tractor, and is claimed to be capable of accomplishing as much in a day as the average three-plow tractor. It is said that by the use of the right kind of moldboard, better plowing can be done at 3 to 3½ miles per hour than is possible with the slower plow. Of course, two plows require less draft than three plows, and the whole tractor can be made so much lighter, while the bearing and gear pressures are also proportionally reduced. The model D Universal being a light machine, it can be used also for cultivating and other two or three horse work. Strong claims are made for the advantage of plowing at higher speed. Thus it is said that tough, leathery sod can be turned at 3½ miles an hour which will defy all efforts to turn it with the same plow and tractor at 2½ miles per hour. Stubble ground is said to be broken up and pulverized much better, leaving less air space, which makes a better seed bed and requires little disking and harrowing. With the right kind of moldboard the soil is not thrown at 3½ miles per hour, but turned just in the correct way. Two plows driven at 3½ miles per hour correspond to plowing 10 acres in 10 hours,



Layout of the transmission and drive of the new Moline tractor



Front view, showing fan drive, belt pulley and internal gear drive

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which is about the same amount of work as can be performed with three plows at 2½ miles per hour.

The Moline Model D has a tread of 56 in., measured to the outside of the wheels, which latter are 52 in. in diameter and have an 8-in. face. Of the total weight of 3380 lbs. of the tractor, 98 per cent rests on the two driving wheels, while the remaining 2 per cent is carried by the implement which is being pulled by the tractor. The left tractor wheel, which runs on the unplowed land, is so arranged that it can be raised or lowered at will, with the object of making the tractor stand up straight, although one wheel runs in the furrow. This makes the tire rest flat on the ground and gives better traction with less wheel slippage.

On 52-in. wheels, disregarding slippage, the tractor travels 2.8 miles per hour at 1400 r.p.m. of the engine; 3.2 miles per hour at 1600, and 3.5 per hour at 1800 r.p.m., the maximum engine speed. The wheel is raised and lowered practically automatically, no jack being necessary. The left driving wheel spindle is secured to an arm which swings around the axes of the differential shaft. An adjusting sector is secured to the side of the transmission housing, this sector having on its inside edge a number of notches into which the arm can be locked by means of a trip lever. If the engine is running, the clutch is let in, and the trip lever is then pulled, the engine will raise the weight of the tractor and automatically lower the wheel. The reverse operation is also automatic, as raising the wheel means lowering the tractor frame, and the weight of the frame takes care of that.

Among the claims made for the new model D tractor is that it steers and handles very easily. The manufacturers express their belief in increased speed for farm tractors, as it permits of the same machine being used for light work.

Standard Parts Gets Abbott

CLEVELAND, June 10—The name and good-will of the defunct Abbott company, as well as the service department, jigs, dies, tools, etc., have been purchased by the Standard Motor Parts Co., and will be conducted in this city under the name of The Abbott Motor Car Co.

Northway Plant Placed Under Oakland

PONTIAC, MICH., June 8—The local unit of the Northway Motor & Mfg. Co., which has been controlled and handled by the Detroit offices, has been placed under direct charge and will operate as a unit of the Oakland Motor Car Co. of this city. The change has been made to bring about greater concentration and also to relieve the Detroit offices of a large amount of work entailed under the former system of control of the Northway plant. The Northway plant employs 1000 men and women. The schedule output is 300 engines daily.

Chalmers Increases Price of Repair Parts

DETROIT, June 8—The Chalmers Motor Co. has increased the price of all Chalmers repair parts 30 per cent.

Tractor Trains Start Regular Daily Schedule

Walter Tractor and Two 5-Ton Trailers Leave Each City Every Twelve Hours

DETROIT, June 8—A tractor train consisting of a Walter tractor and two 5-ton trailers is operating on a regular schedule between Detroit and Toledo, two trains leaving each city daily. Because of a detour that has to be made near Monroe due to road construction the trips now consume 9 hr. After the road is completed it is expected the running time will be cut down considerably.

Owing to the critical steel situation the trains have had little to carry on the trips to Detroit, but capacity loads have always left from this city to Toledo. Nearly everything carried pertains to the automotive industry—motors, springs, bearings, steel, valves, rims, bushings, machinery and submarine chaser plate liners. By fall the company expects to extend its operations to Cleveland, Canton, Akron and Alliance.

Jesse D. Hurlbut is president of the organization, which is incorporated for $100,000. He is also treasurer of the Toledo Grain & Milling Co. Frank C. Schmidt, president and treasurer of the Frank C. Schmidt Realty Co., is vice-president and general manager. Frank L. Baird, of the law firm of Brown, Hahn & Sanger, is secretary. These officers, together with the following persons, constitute the board of directors: Frank C. Hoehler, president of the Security Savings & Trust Co.; L. S. Ottenheimer, president of Cohen, Freidlander & Martin Co.; William C. Carr, vice-president of the Second National Bank; Edward Rosenthal, president of the Home Furniture Co.; Fred C. Ramler of the American Warming and Ventilating Co.

War Chest Drive Nets $87,000

PHILADELPHIA, June 8—The seven-day intensive War Chest drive by the Automobile and Allied Trades Group, under the direction of Lee J. Eastman, resulted in $84,695.87 being pledged, but the campaign, as the minimum quota was fixed at $150,000, is being continued. To date, in round numbers, $87,000 has been subscribed.

For the passenger and commercial automobile trade alone, of which H. B. Harper is chairman, with a minimum quota of $75,000, teams have obtained subscriptions as follows, those where no results yet have been obtained being omitted:

Team 1, J. C. Schwartz, $20,567.08; Team 3, John A. Cleary, $1,650.16; Team 4, W. S. Jewell and D. Garber, $5,700; Team 5, W. F. Roth and C. F. Walz, $7,963.98; Team 6, A. W. La Roche, $7,386; Team 8, John D. Howley, $7,700, and Team 9, B. F. Hoffman, $8,570.

For the accessories and tires, of which W. H. Metcalf, representing the automobile and accessories business association, is chairman, with $25,000 as the minimum, the teams succeeded as follows:

Team 1, George B. Shearer, Jr., and D. D. F. Yard, $1,989; Team 2, Walter F. Bosworth and Malcolm Robertson, $4,517.50; Team 3, Charles G. Frowert and V. S. Fry, $6,547; Team 4, James J. Bradburn and S. D. Winchell, $10,002.96, and Team 5, A. W. Stellwag and W. E. Hoover, $4,657.20.

For the Body Builders, H. G. Moore, chairman, and George A. Spencer, assistant, with $25,000 minimum, collected $3,786.

Robert C. Hupp Dead

DETROIT, June 6—Robert C. Hupp, several years ago prominent in the automobile industry, died at Cumberland, Md., on May 24. Mr. Hupp was the organizer and president of the original Hupp Motor Car Co., which was formed in 1908. During the first three years of the company's existence he was its vice-president and general manager. Prior to the formation of this company he was for some time connected with the Olds Motor Works, becoming eventually service manager. In 1906 he became connected with the Ford Motor Co., in charge of service and accessories, and in 1907 was placed in charge of production for the Regal Motor Car Co.

Columbia Offers New Hearse Body

DETROIT, June 8—The Columbia Body Co. has designed a new hearse and casket combination car which it calls "Liberty." By means of the company's chassis lengthener in conjunction with its patented Sampson load-carrying unit, the large body can be placed on a Ford chassis, making the wheel base 130 in. The body measures 90 in. from the driver's seat and is 42 in. wide. The car is equipped with crown fenders, splash guards, linoleum covered runningboards, demountable rim wheels with over-size 31 x 4 non-skid tires and one extra rim. The body retails at $1,250 f.o.b. Detroit.

White Expects to Do $45,000,000 of Business

CLEVELAND, June 8—The White Motor Co. produced 5900 trucks and 1000 passenger cars in 1917. It is reported that its output of passenger cars this year may not reach in excess of 100. Its truck business will be 60 per cent above last year, it is stated. It is now working on an order for 3000 1 and 2-ton trucks for the United States Army. The company is finishing an order for France for 1500 trucks, and since the war began has delivered 8000 trucks to Russia and 6000 to France. The capacity of the plant is 32 trucks a day, which will be increased to 50. It is reported that the year's business will amount to between $40,000,000 and $45,000,000. More than 70 per cent of the company's capacity is given over to war work.

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Putting the Fordson Across

How Herring Will Distribute 1600 Machines in Three States



Home of the Herring Motor Co., Des Moines

The Letter That Helped Sell 632 Fordson Tractors

HENRY FORD is now building tractors at the rate of about 80 per day. He has supplied England with 7000, Canada with 1000, and is now ready to deliver a large part of his output here in America.

Like the foreign orders filled, his aim is to deliver these in such a manner and in such places as will most benefit food production. As distributer for Iowa and some adjoining states, he has allotted me 1000 to be distributed to the farmers direct, without profit.

I want to spread these over Iowa in an equitable manner. In this work I am to have the co-operation of the State Government, and this letter is for the purpose of obtaining your co-operation as to deliveries in your immediate vicinity. Shipments have already commenced, and it is our intention to deliver this entire allotment within 6 weeks, after which time I will be prepared to allot territory to such agents as will be selected to handle Fordson tractors in the regular manner.

For the purposes outlined above, Mr. Ford has established a price of $750 f.o.b. Dearborn upon these tractors. Added to this will be freight and delivery charges approximating $25.

It is my plan to send a carload to each county seat in Iowa and distribute them with the assistance of the Ford agent, the chairman of the County Council of Defense and the County Farm Agent from that point.

The Oliver Chilled Plow Works has built a two-bottom plow especially for this tractor. Mr. Ford recommends it as the only plow suitable for use with the tractor. I have these en route and will be prepared to deliver them at a price of $140 f.o.b. Des Moines.

I am enclosing such advance literature as I have been able to obtain upon short notice, including two order blanks, which I authorize you to accept from an equal number of farmers who will keep these tractors going in either their own or their neighbors' fields. You may forward these orders and deposits to me and delivery will be made at the earliest possible moment.

There will be no profit whatever to you in this preliminary work other than the satisfaction of having had a hand in the most important step toward increased food production.—Clyde L. Herring, Distributer.

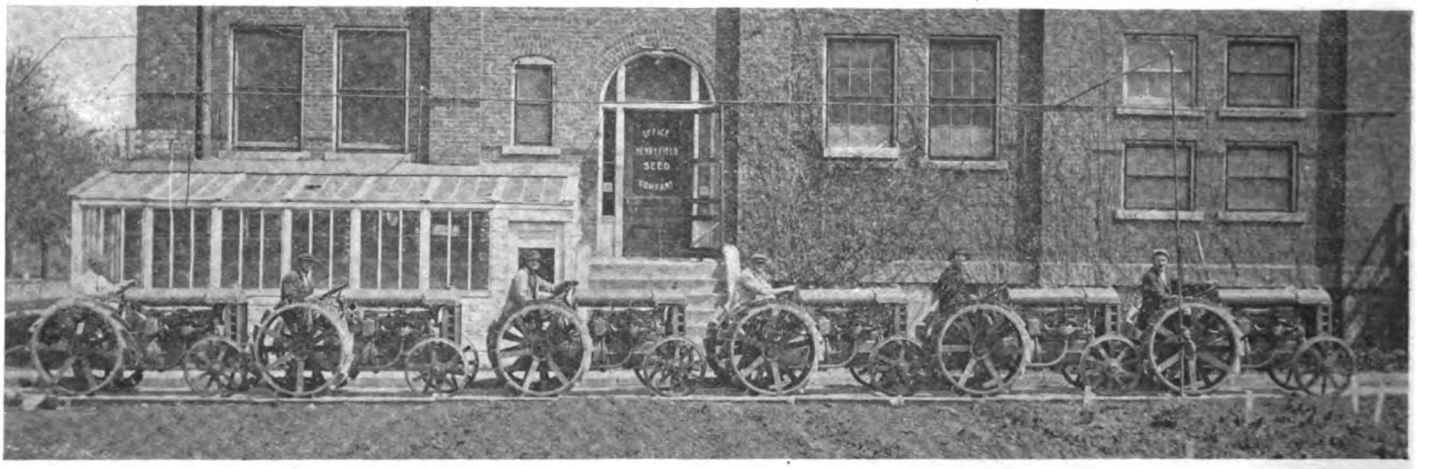
ON April 26 the Herring Motor Co., Iowa distributers for Ford cars in Des Moines, sent to every Ford dealer in the state a letter announcing the forthcoming distribution of 1000 Fordson tractors in the state, of which a copy is given herewith.

So prompt was the response from the motor car dealers that within 10 days replies had been received from over 90 per cent of the Ford dealers in the state declaring their intention to take an active interest in the project to put the farmers of Iowa on a higher productive plane.

To date 632 of the 1000 Fordson tractors apportioned to Iowa have been bought and financed by the motor car dealers and most of them already have been shipped and delivered. It is certain, irrespective of the lateness of the season, that the full quota of the 1000 tractors will have been delivered before the expiration of the 6 weeks specified by the Herring company.

In some respects the plan pursued by the Herring company differs from that

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Here is a complete carload of Fordson tractors shortly after having been unloaded and just prior to their delivery to a dealer in Shenandoah, Iowa

followed in the states wherein Fordson distributions already have taken place. The points of similarity are that the distribution will take place through the Ford dealers of the state and that as far as the tractor is concerned the distribution will be without profit to the dealer.

The plan of the Herring Motor Co. contemplates the placing of an average of 10 tractors in each of the 99 counties of the state. In every instance the tractors will be shipped in car lots from the factory at Dearborn, Mich., to the Ford dealer at the county seat town, but all the Ford dealers in the county nevertheless will take orders and participate in the distribution.

Apportioning the Tractors

In case orders are received for more than ten tractors from any one county the chairman of the County Council of Defense, or the County Agricultural Agent, as the case may be, will select the most deserving ten from the whole number of orders and the county quota will be distributed among these. The participation of the state government is limited to moral sanction and the co-operation of the local county chairman of the State Council of Defense. For the most part the county agricultural agents are United States Department of Agriculture appointees, but their activity is entirely unofficial.

The Oliver No. 7 plows, which will be used with the tractor, will be delivered l.c.l. from Des Moines and will be shipped direct to the Ford dealer taking the tractor order, irrespective of whether he happens to be the county seat dealer or not. The same plan will be pursued with the Lean engine disk harrow. The dealer will sell the plow to the farmer at $140 and the harrow at $146. In order that the dealer may have something to compensate him for the expense and work involved in the profitless distribution of the tractors, he will receive a profit of $15 on the plow and a discount of 20 per cent on the harrow.

A deposit of $100 on every order taken must be made by the dealer, following which the tractor and equipment are shipped with sight draft attached to the bill of lading for the remainder.

At the conclusion of the distribution of the allotment of 1000 tractors, the Herring company will make regular sales contracts with Ford dealers covering specific territory for future tractor trade. The price of the tractor will be advanced at that time and the dealer will be able to make some profit on future sales.

Must Stock Parts

He also will be expected to put in a stock of repair parts adequate to meet the service needs of all the tractors there may be in his territory. For the present the stock of tractor repair parts will be maintained at Des Moines, shipments being made from there on need.

Future contracts with motor car dealers handling the Fordson tractor will include also the agency for the Oliver No. 7 plow, the Lean harrow, the Emerson seeder and such other equipment as shall receive the approval of Henry Ford. Ample stocks of operative equipment will be carried at all times by the Herring Motor Co. at Des Moines and all equipment will be shipped to dealers f.o.b. that point. Motor car dealers who sell the Fordson tractor in the future will handle no operative equipment for use with the Fordson tractor save that which has received Mr. Ford's o k., but also they will have the exclusive agency for such equipment within their respective territories.

Controls Three States

Essentially, the same plan of distribution will be followed in Nebraska and South Dakota, both of which states, in addition to Iowa, are controlled by the Herring Motor Co. Three hundred tractors have been allotted to each of these states, making 1600 machines in all which the Herring Motor Co. will distribute under the present arrangement. For the present Nebraska and South Dakota will be handled from Des Moines, but ultimately central distributing points will be established in each state.

Letters similar to the one sent to the Ford dealers in Iowa were sent to the Ford dealers in Nebraska and South Dakota within the last few days and already responses are coming in, indicating the plan will be as popular and successful west of the Missouri river as it has proven to be east of it.

As indicative of the interest manifested by the Ford dealers of the west, on the day when the MOTOR WORLD representative was in Des Moines he met Guy Harding, Ford dealer at Pierre, S. D., who did not trust to the mail to secure him his far western agency, but who made the long railroad trip to Des Moines in person so that he should be sure to be recognized.

The Herring Motor Co. has had men at the Ford factory taking a special course of instruction, and four of these will be on the road constantly in Ohio and two each in Nebraska and South Dakota. The company has one or more of these men at every delivery and insists that they instruct the farmer thoroughly in the operation of his tractor to the end that he may be perfectly satisfied with it and that it shall at all times give him the maximum of service.

Clyde L. Herring, head of the Herring Motor Co., is loud in his praise for the patriotic and enthusiastic response made by the motor car dealers of Iowa. He says that were it not for their patriotism, energy and enterprise it would be impossible to put over what the company is doing. He is convinced too that a majority of the better and more progressive Ford dealers in the three states he controls will remain permanently in the tractor business and that there is a satisfactory and profitable trade ahead of them, particularly as they will have the sale of the operative equipment which goes with the Fordson tractor as well as the tractor itself.

Gas Engine Makers Convene

CHICAGO, June 4—The 2-day convention of the National Gas Engine Association and a combined meeting of that organization with the midwest section of the Society of Automotive Engineers closed last night with an annual dinner. An address made by Mr. Van der Bries, secretary of the Central District United States Chamber of Commerce, outlined the assistance that national engineering bodies can give the Government by means of war service committees.

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Complete Curtailment of Steel Not Planned

Under Priority System Car and Truck Makers Will Continue to Get Their Share

WASHINGTON, June 10—The motor car industry will not suffer complete curtailment of pig iron and steel shipments in consequence of the agreement between the War Industries Board and the Iron & Steel Institute, despite newspaper reports to the contrary.

Newspaper reports stating that the automobile industry would not receive steel or iron were declared erroneous today by both Bernard Baruch, chairman of the War Industries Board, and J. Leonard Replogle, director of Steel Products.

Under the agreement between the War Industries Board and the Iron & Steel Institute, the situation sizes up as follows:

1—For the time being, manufacturers of passenger cars and trucks will receive pro rata divisions of steel and iron after war needs are met; this puts the automobile industry on the same footing as other non-war industries.

2—The United States and the Allies will be assured of all the steel they need for war work.

3—Every shipment of pig iron and steel must have the approval of J. Leonard Replogle as Director of Steel Products.

4—There is a possibility in some instances for classification of passenger cars and trucks engaged in special work, in a higher division of the selected list, insuring them full steel needs.

The steel agreement means, in brief, that every pound of steel produced must be accounted for. It means that our government and our Allies have first call on steel; and that after all war needs are satisfied, the non-war needs will be taken care of.

The agreement classifies industries into seven divisions as follows:

1—Ships.
2—Aircraft.
3—Munitions
4—Food
5—Clothing
6—Railroads
7—Public Utilities

This is the order in which preference will be given to the various industries by the granting of priorities. For example, after all the steel needed for ships is allotted, then the aircraft program will be taken care of; after that, munitions, including military and naval supplies will be taken care of, and so forth.

If, after all these needs are satisfied, there remains any steel, then it will be parceled out to non-war industries.

Motor trucks for army use will come under the third class, "Munitions." Commercial trucks on the other hand will come under the seventh class, "Necessary transportation equipments." The status of passenger cars and trucks, however, is not definitely settled. In answer to the question, "Will motor trucks used for rural motor expresses be classified as necessary transportation equipment" the reply was:

"If this work is not mere camouflage, they may be classified as necessary transportation equipment."

Passenger cars are not regarded highly by the War Industries Board. One of the highest officials was asked whether they would be classed as public utilities, in view of such classification last winter when the Fuel Administration ordered its 5-day shut-down period. He replied that he was not the priority man but that passenger cars would not come high on the list if he were.

The War Industries Board claims that there is a serious shortage of steel. For months it has been holding conferences with automobile, steel and other industries and making demands for curtailment. The steel makers and others have maintained that there is sufficient steel and recently asked the government for a budget of its needs. The budget was not forthcoming.

Replogle has let it be known that the new agreement will not be completely rigid. It will be sufficiently elastic, so that, for example, a large automobile company that has 90 per cent of materials on hand and needs steel to complete its production, the War Industries Board will not raise an obstacle, in the priority system, but would allow the manufacturer to get the steel.

Class B Trucks Adopted

WASHINGTON, June 7—The Quartermaster standardized 3-ton class B truck has been officially adopted as the standardized heavy duty cargo truck for use by the army in all its departments requiring this capacity truck. This announcement, made by Secretary Baker to-day, marks the first step towards settlement of the controversy on standardized vehicles.

A series of tests for power and fuel consumption was held here secretly 3 weeks ago to determine which trucks were best. Many commercial makes of trucks competed with the standardized war trucks. The announcement by the War Department emphasizes the quality or superiority of the B truck in comparison with all standard makes of trucks.

It is expected that other announcements will be made in the near future, as to the worthiness of the A and AA types of standardized trucks and standardized motorcycles, which were also tested.

The test reports have not been made public. It is doubtful if they will be. To make public announcement of them would be to give publicity to the inferiorities and superiorities of various private makes of trucks and motorcycles. Reports are coming from authoritative sources, indicating that all three of the standardized war trucks, together with the standardized motorcycle made excellent showings in every test, excepting in one instance, where the new standardized four-wheel-drive truck displayed superiority in climbing over a log, one test in which the four-wheel-drive would naturally be expected to be superior.

Nothing Settled on in Taxation Tangle

Imposts on Cars and Gasoline Proposed—Coal Shortage May Affect Production

WASHINGTON, June 10—Doubling the 3 per cent tax on the cost of motor cars, a Federal license tax of from $2 to $10 on the users of cars, and a tax of one-third of a cent per gallon on gasoline used by all commercial gasoline engines, were among the radical tax suggestions made before the Ways and Means Committee late last week.

A blacklist of non-war industries to be definitely curtailed, compiled by the War Industries Board, the Food Administration, the Fuel Administration, Railroad Administration and Labor Administration, is said to be in process of completion.

According to a warning issued by the Fuel Administration, industries not doing 40 per cent of government war work by Oct. 1, 1918, will be reduced 40 per cent in their normal coal allowance. Certain industries doing 100 per cent war work and administrative consumers will receive 100 per cent coal, with those companies compiled is drawn up to inform the non-preference, those doing less or no war work will have little chance for a constant fuel supply.

These serious obstacles to normal production together with the menace of steel shortage created by the steel argument described elsewhere in these columns bring non-war industries into a number of difficulties. The passenger car industry is, according to all reports, considered a non-war industry in Washington. The blacklist which it is reported is being compiled is drawn up to in form the non-essential industries of their position as regards shortage of materials.

Shortage of Materials

Washington officials believe that it will be better to inform these industries definitely what they can expect in the matter of receiving raw materials, than to hold them off longer with vague promises and evasions. They point to the three important factors, labor, coal and transportation, claiming a shortage in all.

The report is to the effect that many manufacturers will be compelled to stop entirely, while others will be curtailed to a great degree. It is anticipated that the Priorities Board of the War Industries Board will be the departmental organization, which will be the agency for working out the blacklist.

P. B. Noyes, director of coal conservation of the Fuel Administration is now warning industries to enter in the war work or suffer fuel curtailment next winter. It is claimed that the United States will fall short 60,000,000 tons of its normal coal needs for this coming winter, and there will be little opportunity for manufacturers of non-war requirements to secure their quotas.

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Three Cities Adopt War Service

Milwaukee, Louisville and Chicago to Eliminate Night and Sunday Service

MILWAUKEE, June 10—The decision of the War Economy Board of the National Automobile Dealers' Association to close garages, service stations, tire and accessory stores and shops at 6 p. m. daily and on Sundays and holidays, to release 30,000 mechanics to the Government service, was adopted and ratified by 212 individuals, firms and corporations of Wisconsin at a meeting called by the Milwaukee Automobile Dealers, Inc., at Milwaukee during the past week. The remaining members of the industries are signing ratification cards and it is expected that Wisconsin will stand 100 per cent within a short time.

As a result of the decision, the M. A. D. is preparing a pamphlet explanatory of the war time policy, for distribution among owners. It will give the names and locations of the five emergency stations established in Milwaukee, temporarily appointed as follows:

Downtown, Standard Auto Repair Co., 188 Eighth Street; East side, Wilson's Garage, 375 Summit Avenue; North side, Gas Power Engineering Co., 215 North Avenue; South side, South Side Service Station, 834 Muskego Avenue.

The M. A. D. also contemplates the establishment of a trade school in automotive mechanics to replenish the supply of skilled workers by training men below and above the present draft ages. The plan is similar to that adopted in Canada after one year of war.

The directors of the M. A. D. are considering the organization of divisions of associate memberships for truck, accessory and tire owners, which will add about 100 to the member roll.

It is stated that the new regulations promulgated by the national dealers' association at the request of the Government will not throw any men out of employment in Milwaukee, save perhaps a very few. More than 500 mechanics already have been taken from the payrolls of local establishments by voluntary enlistments and the selective draft and for some time past there has been a virtual shortage of men.

Louisville Falls in Line

LOUISVILLE, June 10—The Louisville Automobile Dealers' Association, of which Prince Wells is president, has lined up with the War Economy Board of the Council of National Defense and adopted resolutions similar to those adopted by the War Service Committee of the National Automobile Dealers' Association. The resolutions follow:

(1) *SUNDAY AND NIGHT LABOR*—A large proportion of mechanical work done on Sunday and night is occasioned by the use of automobiles almost entirely for pleasure purposes and usually emergency road service. It is recommended that a proper curtailment of this service would bring about a material saving of labor and release many automobile mechanics for war service.

(2) *ON AND AFTER JUNE* 15 this company will operate as mentioned below. We request our customers to help us in conserving MAN POWER.

(3) *SERVICE STATION* will not operate on Sundays or night, nor will any mechanics be in the garage to perform labor or adjustments. Customers should have their cars attended to during the week, EXCEPT WHERE absolutely necessary for cars used in actual essential pursuits, including commercial vehicles for commercial purposes which may require immediate attention.

(4) *STOCKROOM* will be closed, and no parts supplied or stock sold.

(5) *CASH*—We request our customers to make settlement for repairs, parts and accessories in cash to help us save unnecessary office labor.

(6) *HELP*—We will endeavor to help our customers by instructing them how to make adjustments which they can easily do to help them in operating their car and avoid unnecessary road service and save labor. Free service coupon books and service cards where used will be discontinued.

(7) *WASTE*—You can help win the war by avoiding waste of gasoline, oil and tires. Stop gas and oil leaks at once. Reduce your speed. Avoid excessive tire wear, and have your tires repaired as soon as they become cut or otherwise damaged.

(8) *SALESROOM*—Will be closed and no salesmen will be on duty, nor will they make demonstrations on Sunday.

We request the public to be patriotic and help us carry out the above requests made by the *COUNCIL OF NATIONAL DEFENSE*.

Chicago Adopts Recommendations

CHICAGO, June 8—Chicago motor car dealers at a meeting yesterday unanimously adopted the recommendations of the War Economy Board at Washington regarding service during the continuance of the war. The action of the Chicago dealers was in line with the resolution adopted at the meeting of the board of directors of the N. A. D. A. at St. Louis, May 17 and 18, when dealers everywhere were called upon to enforce the recommendations of the War Economy Board.

Yesterday's meeting was addressed by E. E. Peake of Kansas City, executive secretary of the N. A. D. A. and president of the National Association of Automobile Show Managers.

The Chicago Automobile Trade Association will entertain the delegates attending the national convention of the N. A. D. A., which will be held at the La Salle Hotel, Chicago, Friday and Saturday, June 14 and 15. A dinner will be tendered the delegates on Friday evening at the South Shore Country Club and on Saturday afternoon they will be guests of the association at the Sox ball park to witness the baseball game between Chicago and Washington. Alternative entertainment for those who prefer will be tendered at the various golf links around about Chicago.

Ohio Out For More Members

COLUMBUS, OHIO, June 10—Victor Moon, commissioner of the Ohio Automobile Trade Association, is holding a number of meetings in various parts of the state in order to work up enthusiasm for the association. He held a meeting in Cincinnati June 5 and another at Athens June 6. Both meetings were well attended. Members are coming in nicely and the work of the association, especially along war lines, is progressing satisfactorily.

St. Louis to Standardize Accounting

ST. LOUIS, June 8—The Junior Officers' Bureau of the St. Louis Automobile Manufacturers' and Dealers' Association has completed its organization. The first task will be that of standardizing accounting and service methods for all member firms.

The organization was completed with 49 representatives of 31 firms. The following were nominated for officers, to serve until January of 1919: for president, C. W. Huth of the Cadillac Automobile Co., and W. L. Hausmann, Velie Automobile Co.; vice-president, Eugene Mussler, De Luce Automobile Co. and R. N. Whitney, Dorris Automobile Co.; secretary, I. J. Messinger, Hudson-Phillips Motor Car Co.; treasurer, Charles Boarding, Davie Motor Car Co.; A. J. Zimmerman, Park Automobile Co., and Walter L. Prack, Vesper-Buick Auto Co.

Boston Re-elects MacAlman

BOSTON, June 8—The annual meeting of the Boston Automobile Dealers' Association was held this week, at which reports were made showing that the automobile show in March was a big success. President John H. MacAlman gave some facts regarding what transpired at the meetings of the National Automobile Dealers' Association recently. The following officers were re-elected: President, John H. MacAlman (Stearns); vice-president, Josiah S. Hathaway (White); treasurer, F. A. Hinchcliffe (Jordan); secretary, Chester I. Campbell. These officers and John H. Johnson (Buick), Charles E. Fay (Maxwell), John W. Bowman (Daniels), J. W. Maguire (Pierce-Arrow), Frank E. Wing (Marmon) and C. F. Rockwell (Nash) constitute the board of directors.

Decatur Holds a Show

DECATUR, Ill., June 10—Decatur's first motor car show given in conjunction with a "Made in Decatur" exhibit, attracted many thousand visitors. The completion of the new factory buildings of the Comet Automobile Co. led to the suggestion that it be dedicated with a display of all products made in Decatur in addition to motor cars. Manufacturers and business men generally gave their support, and the result was an extensive exhibit. The automobile section was occupied by forty dealers in cars, tractors, trucks and accessories. The show opened June 3 and closed June 8.

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Car Makers Decide For More Standardization

To Eliminate Some Unnecessaries as Conservation Measure—Drive-aways Decline

NEW YORK, June 7—The National Automobile Chamber of Commerce at its annual meeting yesterday and to-day decided to appoint a committee to delve deeply into standardization and conservation matters with a view to co-operating more closely with the Government in saving materials. Charles Clifton, president of the Pierce-Arrow Motor Car Co., Buffalo, was re-elected president, and all other officers were re-elected, the only change being in the board of directors, where H. M. Rice, Chevrolet Motor Co., takes the place of the late Colonel Pope.

In the matter of conservation, it is the plan of the chamber to investigate the possibility of eliminating a number of unnecessaries such as the use of virgin wool for upholstery material, vanity curtains in limousines and a number of other things of the like. An effort will be made to substitute more common materials for those that are in great demand for war work, such, for example, as chromium steel and tin.

Thirteen Makers Made Members

During the year gone by thirteen manufacturers of trucks have been admitted to membership, bringing the list up to 52 makers of trucks and 85 of passenger cars. The companies added were: Acme Motor Truck Co., Cadillac, Mich.; Bethlehem Motors Corp., Allentown, Pa.; Brockway Motor Truck Co., Cortland, N. Y.; Clyde Cars Co., Clyde, Ohio; Diamond T Motor Car Co., Chicago; Dorris Motor Car Co., St. Louis; Republic Motor Truck Co., Alma, Mich.; Sanford Motor Truck Co., Syracuse; Schacht Motor Truck Co., G. A., Cincinnati; Service Motor Truck Co., Wabash, Ind.; Standard Motor Truck Co., Detroit; Stewart Motor Corp., Buffalo; United Motors Co., Grand Rapids, Mich.; Ward Motor Vehicle Co., Mount Vernon, N. Y.

It has been recommended that the Motor Truck Division appoint a committee to investigate the possibility of further standardization, particularly with reference to axle widths and treads.

Increase Transportation Cost by $6,000,000

The Traffic Committee estimates that the 25 per cent increase in freight rates which is to go into effect June 25 will mean an increase of $6,000,000 in the cost of transportation, based on shipments equal to those of last year. A standard 36-ft. carload shipment will cost $19.25 more between Detroit and New York, and $77.50 more between Detroit and San Francisco than under the old rates. Through intensive loading methods, which means more improved double decking and partial crating, some members have been able to increase the capacity of freight cars from 50 to 100 per cent.

Drive-aways are dropping slightly in the aggregate, due to the reduced output of factories. The chamber is actively working through the various State Councils of Defense to eliminate interference with strings of cars en route by officious or over-zealous police authorities.

With regard to the truck and tractor show which is to be held in Chicago this fall it was decided to notify members of the Chicago Automobile Dealers' Association that their participation be left to their own discretion; it was the sentiment of the truckmakers themselves that they would not exhibit because it is deemed that the time is not opportune.

The next meeting of the chamber will be held at the New York offices on July 10.

Changes in Price

NEW YORK, June 10—The following changes in price have been made during the past week:

	New Price	Old Price
Franklin, 2-pass.	$2400	$2200
5-pass.	2450	2445
4-pass.	2450	2445
Sedan	3350	3050
Limousine	3400	3200
National, Six Cylinder, 2-pass.	2450	2150
5-pass.	2450	2150
7-pass.	2450	2150
Coupe	2945	2645
Sedan	3120	2820
Twelve Cylinder, 2-pass.	3150	2750
4-pass.	3050	2750
7-pass.	3050	2750
Coupe	3545	3245
Sedan	3720	3420

Need 36,000 Men For Harvest

WASHINGTON, June 5—Western harvest cutting will start about a week earlier than last year, and will require 36,000 men from outside sources; 6000 will be needed for Oklahoma, and 30,000 for Kansas. The United States Employment Service is in charge of the situation.

Wages in the main wheat belt are $3.50 per day with board to harvest hands in Oklahoma, and $4 to $5 per day with board to harvest hands in Kansas. Stackers will receive higher wages.

There is a movement under debate to pay the men by the hour, with wages running from 40 to 50 cents an hour with board. Anyone desiring to secure farm work can apply at any of the offices of the United States Employment Service, located in practically every city in the country.

Illinois Tractor to Build

KANSAS CITY, June 10—The Illinois Silo & Tractor Co., Bloomington, Ill., will establish a tractor assembling plant in North Kansas City in the near future. The company, through D. T. Garber, vice-president, has purchased a tract of ground with a 305-ft. frontage, 118 ft. deep. The proposed structure will be four stories and practically cover the ground.

Toledo Jobbers Urge Standardized Packages

Ohio Body Affiliates With N.A.A.J. and Suggests Uniformity in Packing

TOLEDO, June 10—The first quarterly meeting of the Ohio Automobile Jobbers' Association, since its organization at Columbus, Feb. 9, was held in this city recently with quite a large number present. The announcement was made that steps for affiliating with the National Association of Automobile Accessory Jobbers had been completed and it is now an integral part of the national organization. New members were admitted as follows: The Union Supply Co., Toledo, and the York Supply Co., Greenville.

The committee on standardization, consisting of H. M. Dine, Canton; W. L. Derheimer, Cleveland, and H. H. Brenner, Cincinnati, recommended that all packages be made a standard size whenever possible, and that the packing be made the same. It was pointed out in the report that by standardizing packing and sizes of packages much good for the association members would be brought about. The next quarterly meeting will be held in Cleveland some time in August.

Work Started on New Hackett Factory

BURLINGAME, MICH., June 8—Work on the new factory of the Hackett Motor Car Co., which will be composed of four units, is under way. Three of these will be of equal size, measuring 70 x 500 ft. and having a floor space of 35,000 sq. ft. each. These units will be built parallel and will be linked together at the end by the two-story fourth unit, 60 x 400 ft., which will contain executive offices, stockroom, experimental departments, etc. The total floor space of the four units will be 180,000 sq. ft.; and will have a daily capacity of 100 cars.

Duray To Race Here Again

CHICAGO, June 8—Arthur Duray of the French army, old-time racing driver, who finished second in the 1914 Indianapolis contest, arrived here yesterday and is expected to enter the derby scheduled for the Chicago speedway June 22. Duray is in this country in connection with work for the aviation service of the French government. He brought no car with him from Europe but will handle a Frontenac car which has just been purchased by Harry Harkness.

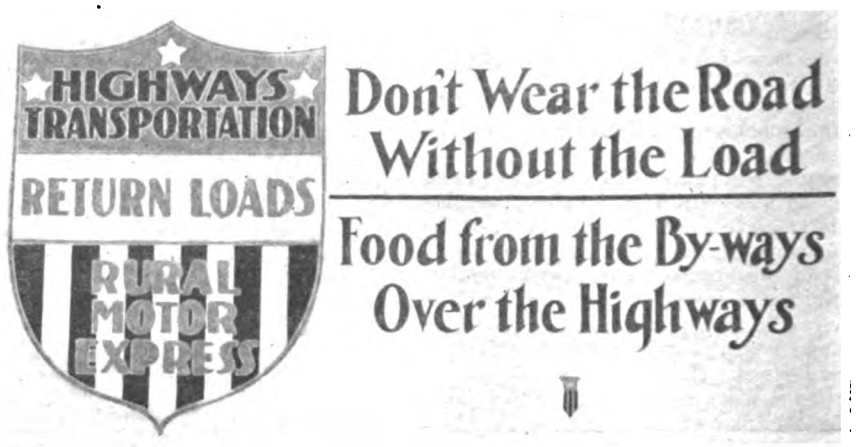
Paige Trucks Ready in July

DETROIT, June 8—The Paige Motor Car Co. has just gone into the last of four new buildings recently erected for the company, which adds 66,000 sq. ft. to its floor space. The company reports that its trucks will be ready for the market the latter part of July. No price has yet been established on the product.

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Wanted: More Return Loads Bureaus

Highways Transport Committees of 23 States Tell of Progress and Urge Further Development



New poster, advocating the establishment of Return Loads Bureaus and Rural Express Routes, which has been prepared by the Highways Transport Committee. Its wide distribution would assist materially in spreading the gospel of these two important works.

WASHINGTON, D. C., June 5—The big 2-day get-together meeting of the representatives of the Highways Transport Committees of twenty-three State Councils of Defense with the parent Highways Transport Committee here in Washington was the greatest step forward yet made by that committee to spread to the country at large the necessity of the formation of statewide Return Loads Bureaus and the establishment of rural motor truck express routes. Delegates were present from the far off State of Colorado, where motor trucks are to-day performing a wonderful service in long overland hauls from mines from which vitally necessary war materials are being dug. The other twenty-two states represented were Alabama, Connecticut, Delaware, Illinois, Indiana, Kentucky, Maryland, Massachusetts, Michigan, Missouri, New York, New Jersey, North Carolina, Ohio, Pennsylvania, Rhode Island, Tennessee, Texas, Virginia, Wisconsin, West Virginia and the District of Columbia.

Three Main Topics

The three main topics were Return Loads Bureaus, Rural Motor Truck Express Routes and Good Roads. Roy D. Chapin, chairman of the Highways Transport Committee of the Council of National Defense, presided at the conference and gathered about him such a fine array of well-qualified speakers that practically all of the representatives went back to their respective states with the determination to form Return Loads Bureaus in those states not now having them and to speed up the work in those bureaus already formed.

They also went back with the determination to establish rural motor truck express routes to haul food raised in the vicinity of cities into those cities, to the end that farmers may be kept on their farms, and to work for better roads and better road maintenance.

The imminent necessity for organizing and using the motor trucks of the country at their highest efficiency in order to relieve the railroads of their short-haul traffic and to keep the farmer at actual food production work on his farm by means of supplying him reliable transportation to and from his city's markets, were driven home by the various speakers, who included representatives of the Railroad, Food and Labor Administrations and others who have been closely identified with the work in various parts of the country.

While the Return Loads Bureau idea has been permanently sold in the Eastern States, where the merchants were forced to use motor trucks last winter and this spring to get their goods delivered, the idea has not been taken up to the same degree in the central western part of the country, where the congestion has not been so great as along the Atlantic seaboard.

Practically every speaker brought out the important fact that it is a patriotic duty to form Return Loads Bureaus and rural express lines, and that now is the time to accomplish this work, so that all of the bureaus will have all of their preliminary work done before the traffic jam comes this winter.

Congestion Foreseen

That this congestion will come has been foreseen by close students of transportation for some time, but was brought home forcibly to those delegates in attendance by R. C. Wright, Assistant Traffic Director of the United States Railroad Administration, who said that there undoubtedly would be many embargoes this year, and that the Railroad Administration looks with favor upon the development of highway transportation by means of motor trucks, and will assist in extending truck transportation to the greatest possible extent in order to relieve the railroads of their short-haul freight difficulties and their terminal congestion. It was also brought out that it is not probable that any future short-line railroad extensions will be built, and that the motor truck will be called upon to handle all of this business both during the war and after the war.

The significant fact was brought out by Joseph Husson, editor of *The Commercial Vehicle*, that the Goodyear Tire & Rubber Co., Akron, looks for no relief from the present railroad congestion for at least 5 years. The traffic managers of that company based the reason for their contentions on the fact that the increased war material which must be shipped abroad will offset any increased efficiency on the part of the railroads. All of the food and clothing heretofore consumed by the soldiers of the draft who have been selected from points remote from the Eastern Coast will have to be shipped this year to the Atlantic for transshipment overseas. Our army in France is still small as compared with what it will be, and as it grows at the rate of from 200,000 to 300,000 per month more and more food, clothing, ammunition and various other materials will have to be shipped across the country to the Eastern seaboard. All of this material will have to be moved and will be given preference over any and all commercial products so that merchants who are desirous of carrying on their businesses will have to take second choice and will be forced to use motor trucks to deliver their goods.

W. S. Gifford, Director of the Council of National Defense, in a short talk, publicly urged that highway transportation be increased to the greatest possible extent in order that there be no weakness in that triolgy of transportation means consisting of the railways, waterways and highways.

What the Bureaus Have Done

The actual work which the Return Loads Bureaus already established have accomplished was outlined by D. C. Fenner, of the New York City Return Loads Bureau; by David Harper and J. F. Winchester, respectively president and secretary of the Motor Truck Club of New Jersey, which is operating the Return Loads Bureau in Newark, and by Charles J. Bennett, Connecticut State Highway Commissioner.

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F. C. Ertsman, secretary of the Highways Transport Committee of Illinois, and William E. Hull of Peoria, Ill., were of the opinion that the poor roads of Illinois would retard the development of a Return Loads Bureau in that state, and that some immediate action should be taken by the Federal authorities in Washington to assist and promote the building of necessary highways in that state and of the maintenance of those roads already built.

It was also brought out that one bad stretch of road about 16 miles long was the one main reason why a great volume of motor truck traffic was not now passing between Chicago and the great manufacturing center of Milwaukee. While it was also expressed that there was not much goods which could be shipped out of Chicago by means of motor trucks, Husson offered as evidence a letter from the Chicago Hardware Foundry Co. of North Chicago, Ill., which showed that that one concern has 7500 tons of goods yearly which can be moved by trucks to Chicago, Milwaukee and Racine Junction.

The necessity for the establishment of Rural Express Routes was outlined by F. C. Marquis, the member of the parent Highways Transport Committee in charge of the rural express work. The United States Food Administration has been so impressed with the possibilities of motor trucks to increase food production that it has given definite orders to all of its local food administrators to assist in every way in its power to establish rural express lines.

The remarkable work which has been performed by such lines in the vicinity of Washington was outlined by P. R. Wilson, the Washington Food Administrator, and by J. N. Barnsley, who operates one of the lines from Olney, Md., into Washington.

Helping The Farmer Produce

C. T. Clayton, of the United States Department of Labor, was of the opinion that the establishment of necessary rural express routes in localities where it is now possible for them to operate would be equivalent to putting more than 100,000 of the very best type of farmers into actual production on the farms of the country. The placing of this large number of men in actual production work would be effected by providing the necessary transportation so that they would not have to drive their own loads to market and be absent from the farms for the length of the trips into the various cities.

If this number of men could be saved for actual food production it would go a long way toward solving the present shortage of farm labor, which is estimated at approximately 24 per cent of the total farm labor supply, although it is thought that the same or a larger production than last year could be made possible by an increase of only 12 per cent instead of 24 per cent.

The work which the National Automobile Chamber of Commerce is doing toward the extension of rural motor express routes was outlined by S. A. Miles, who told of the appointment of district agents in twenty-eight of the leading cities in the country to carry on the work personally and through the medium of booklets issued by the chamber and by newspaper and other publicity.

It was also pointed out that motor trucks will have to be called upon to assist in hauling our great food crops from the fields to the shipping points so that the farmers can remain on the farm during the entire crop season. Our crops of wheat and corn promise to be larger than ever before, and it will be a national calamity if they cannot be moved effectively either by the railroads or by the assistance of motor trucks, to get them to the shipping points in the least possible time.

If any considerable amount of our wheat crops should be spoiled it would mean that everybody in the United States would have to go without wheat for at least 6 months if the Allies are to be supplied with their necessary quota.

Detailed advantages of the rural motor truck express route was pointed out by Barnsley, who put his motor truck into service 4 years ago, and during the period between that date and the present time has cultivated 17 acres more of corn and 22 acres more of wheat, or 39 acres a year in all, than he cultivated before his truck was purchased.

What One Man Has Done

He recently hauled 600 bushels of wheat into Washington in one day with one of his trucks and one man, whereas a four-horse team requiring two men hauled only 100 bushels in the same time. Besides the increased farm production which his four motor trucks have made possible, they have also enabled him to increase the size of his dairy herd because he was able to deliver the increased milk production by trucks, whereas it would have been impossible with horses unless a dozen or more had been added to his stable.

Besides his own work, Barnsley also hauls milk and farm produce for fourteen to sixteen farmers in his immediate neighborhood who would otherwise have to hitch up their own wagons to get their goods into Washington or else purchase trucks which would be used only part time. By making use of Barnsley's vehicles, the latter are run with full loads continuously, and the farmers are able to stay on their farms and aid in increasing their farm productivity.

The use of motor trucks in hauling milk has also proved a great benefit to the farmers in that they have been able to get their empty cans in sufficient time to keep their supplies going forward continuously. A concrete example of the delays which farmers experience in getting their empty cans by railroad express was cited in the case of a Virginia farmer 50 miles from Washington who had 110 cans and who could not get eight or nine cans daily to ship his milk and had to hold it in washtubs until the cans were returned. In some cases they did not arrive in time and the milk had to be fed to the pigs.

It was brought out that good roads are a necessity for the development of both Return Loads Bureaus and Rural Express Routes. The thought that while we all want to see good motor truck highways, but that these cannot be built in a day or even during the period of the war, was well expressed by George H. Pride, a member of the Highways Transport Committee, who pointed out that we must make the best possible use of what highways we now have.

If we cannot have 365-days-in-a-year highways, it is better to have 180-days highways or even 90-days or 30-days highways.

Many of the roads which are now impassable during certain periods of the year could be greatly improved and made passable for motor truck traffic if they were temporarily graded or ditches provided for drainage so that water would not accumulate and result in the mires which are so detrimental to truck progress.

William E. Hall of Peoria, Ill., summarized the road situation in his state, and brought out the fact that Illinois now has $4,000,000 in its treasury which is available for road building work, but that this money cannot be used for the purpose for which it is intended because of the refusal of the Capitalistic Committee, which must first approve of any road-building expenditures. Similar reports were made by the representatives of other states.

The entire road program has taken on a more optimistic color since the removal of the famous priority order No. 2, which prohibited the shipment of all highway materials by railroad, and the situation appears to become brighter due to the fact that the Council of National Defense is now working upon a Federal road policy which it is expected will be promulgated during the course of the next few weeks.

Want More Good Roads

David L. Ludlum, president of the Autocar Co., Ardmore, Pa., presented a resolution to the Council of National Defense urging upon it the adoption of such a policy. The resolution was unanimously adopted by the representatives at the meeting and will be presented to the council by the Highways Transport Committee.

The necessity for better roads in this country was proven by the experience abroad where, if it had not been for good roads, probably all of France would now be in the hands of the Germans. This message was brought by Captain Vandervelde, of the Motor Transport Section of the French Army, who publicly gave thanks that his French forefathers had realized the benefit of good roads and had built them in France so that they were one of the main instruments which was responsible for turning back the Germans on the Marne in 1914. Of the 1000 taxicabs which were employed to transport two divisions of the French Army from Paris to Van Kluck's flank on that memorable day in September, only two did not stay in service until the movement was completed, a tribute to good roads.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

W. E. Hutchison has been appointed manager of purchases of the Denby Motor Truck Co., Detroit, succeeding E. F. Oberlin, who has recently gone into government service. He was formerly purchasing agent for the United States Ball Bearing Co., Chicago.

F. X. Devlin, formerly purchasing agent of the Federal Motor Truck Co. and later purchasing agent and stockholder of the Elgin Motor Car Co., Chicago, has been appointed purchasing agent of the Standard Motor Truck Co., Detroit.

J. A. Stairs has been appointed general superintendent of ordnance production at the Harroun Motors Corp., Wayne, Mich. He was formerly vice-president of the Eastern Steel Co., New Glasgow, N. S., and during the last 3 years has been specializing in ordnance production.

C. B. Gaunt, who left the Paige Motor Car Co., Detroit, to associate himself with another company in January, is now back with the company in charge of the order department.

Walter J. Moore, for the past 2 years office manager in St. Louis for the United States Tire Co. branch, has been transferred to Washington to look after the company's business with the Government.

L. S. James, who has been connected with the automobile business in St. Louis since its beginning, has been made general salesmanager for the Harward Mfg. Co., makers of the Harward piston ring.

Oscar Norris, a member of the staff of the Vesper-Buick Auto Co., St. Louis, departs June 15 for France to take up Y. M. C. A. war work.

A. D. Beach has been placed in charge of the wholesale sales for the Cadillac Automobile Co. of St. Louis.

E. L. Kraemer, Pontiac, Mich., an attorney, formerly of Chicago, has become associated with the Oakland Motor Car Co. to take the position vacated by L. J. Hussey, advertising manager. Kraemer will also direct sales.

Robert M. Gregory has been appointed director of purchases for the Lane Motor Truck Co., Kalamazoo, Mich. He was formerly with the Oakland Motor Car Co., Pontiac, Mich., the Hupp Motor Car Co., and the Packard Motor Car Co., Detroit.

William C. Robb has resigned as purchasing agent of the Detroit Lubricator Co., Detroit, to take a like position with the Detroit Shell Co.

W. I. Denny, purchasing agent of the Davis Mfg. Co., Milwaukee, the motor manufacturing division of the Avery Co., Peoria, Ill., has resigned to enter the military service, being assigned to the ordnance department. He is succeeded by R. Bryant Henning, who has been assistant purchasing agent.

George H. Hunt, former manager of the Detroit office of the Stromberg Motor Devices Co., Chicago, has resigned to become Detroit representative of the Edward G. Budd Mfg. Co., Philadelphia, body manufacturer.

H. G. MacEachen, Pacific coast advertising representative of the Firestone Tire & Rubber Co., Akron, has resigned to join the United States army.

Fred A. Wade has resigned as superintendent of the Buick Motor Co., Flint.

J. G. McHugh has been appointed a special factory representative for the Federal Motor Truck Co., Detroit.

George K. Parson, Detroit manager for the L. V. Flechter Co., Long Island, N. Y., has resigned that position, but has not announced his future plans.

Reo Producing 90 Vehicles a Day

LANSING, June 10—The Reo Motor Car Co. at present is turning out about ninety vehicles per day, of which 55 per cent are trucks. Within 30 days it expects to be turning out its government order for caterpillar tractors.

Campbell To Manage Government Expositions

BOSTON, June 8—Chester I. Campbell, manager of the Boston automobile shows, has been asked by the Federal government to take charge of a number of educational expositions which it is proposed to put on during the next few months throughout the country. He went to Washington to confer with officials there about it, and finally he decided that he would accept the offer. The first exposition will be on the Pacific Coast, and there will be others in big cities from time to time. The details will be placed in Campbell's hands, and he insisted that he be given full power to go ahead without being tangled up in a lot of red tape and departmental orders which might jeopardize the success of the undertakings.

Swaney Company Loses Schilz

FORT DODGE, IA., June 10—Bertrand L. Schilz, for the past 3 years secretary and a director of the Swaney Motor Car Co., Ford distributer, died of pneumonia in an army post hospital at Fort Leavenworth, Kansas, last week. He was but 24 years old and was in the draft increment that left Fort Dodge Feb. 27. After three weeks of training at Camp Dodge he was transferred to Fort Leavenworth, where he was a member of the 31st Engineers company.

Boston Helps Educate Government Mechanics

Dealers Take Army Mechanics Into Their Shops to Work on Regular Overhaul Jobs

BOSTON, June 8—Boston dealers are co-operating with the Federal officials in aiding to train young men sent to the Franklin and Wentworth Institutes to learn about automobile and truck construction and repair. At the Franklin Institute, where 150 young men for the repair section of the army were graduated this week, the soldiers had in addition to the regular equipment, cars and trucks sent by Alvan T. Fuller's service station, comprising Packards and several other makes; some Cadillacs from Albion L. Danforth's repairshop; some Studebakers sent over by Joseph S. Donovan, and some Fulton trucks handled by A. H. Sowers.

Each of these men sent skillful repairmen to the institute, and the soldiers worked under their direction refitting cars and trucks belonging to customers of the dealers. In this way the lads got more thorough instruction than would have been possible had they stuck to the machines owned by the institute. And as there were some 150 men in the section it meant that they could be split up into smaller groups to better advantage.

The Federal government officials sent on some Dodge Brothers cars, some motors of the new Liberty trucks, as well as some new Riker and Packard trucks for experimental purposes. A room was also fitted up for making complete a lot of tin utensils so the soldiers could learn tinsmithing here and do such work abroad.

Stoll Auto Bed and Tent Raised

The Stoll auto bed and tent, made by the Stoll Mfg. Co., Thirty-third and Walnut Streets, Denver, has been increased in price from $48.50 to $54.50 because of increased cost of materials and labor.

Motor Car Securities Quotations

	Bid	Asked
*Ajax Rubber Co	57	60
*J. I. Case T. M. Co., pfd	..	88
Chalmers Motor Co., com	5	6
Chalmers Motor Co., pfd	20	40
*Chandler Motor Co	84	86
Chevrolet Motor Co	124	128
*Fisher Body Corp., com	30	35
*Fisher Body Corp., pfd	82	87
Fisk Rubber Co., com	54	57
Fisk Rubber Co., 1st pfd	98	102
Fisk Rubber Co., 2nd pfd	93	96
Firestone Tire & Rub. Co., com	89	91
Firestone Tire & Rub. Co., pfd	92	95
*General Motors Co., com	124	126
*General Motors Co., pfd	81	83
*B. F. Goodrich Co., com	43	44
*B. F. Goodrich Co., pfd	99	100
Goodyear Tire & Rub. Co., com	143	147
Goodyear Tire & Rub. Co., pfd	95	97
Grant Motor Car Corp	3	3½
Hupp Motor Car Corp., pfd	81	85
International Motor Co., com	30	35
International Motor Co., 1st pfd	55	65
International Motor Co., 2nd pfd	35	45
*Kelly-Springfield Tire Co., com	46	48
*Kelly-Springf'd Tire Co., 1st pfd	78	87
*Lee Rubber & Tire Corp	17	18
*Maxwell Motor Co., Inc., com	26	28
*Maxwell Motor Co., Inc., 1st pfd	54	55
*Maxwell Motor Co., Inc., 2d pfd	19	20
Miller Rubber Co., com	99	101
Miller Rubber Co., pfd	93	95
Packard Motor Car Co., com	105	110
Packard Motor Car Co., pfd	94	98
Paige-Detroit Motor Car Co	16	17
Peerless Truck & Motor Corp	13	17
Portage Rubber Co., com	103	106
†Reo Motor Car Co	13	15
*Saxon Motor Car Corp	7	9
Standard Motor Construction Co.	11	13
Standard Parts Co	..	68
*Stewart-Warner Speed. Corp	59	60
*Studebaker Corp., com	44	45
*Studebaker Corp., pfd	85	90
Swinehart Tire & Rubber Co	38	42
United Motors Corp	27	28
*U. S. Rubber Co., com	56	57
*U. S. Rubber Co., pfd	102	104
*White Motor Co	41	42
*Willys-Overland Co., com	19	20
*Willys-Overland Co., pfd	81	83

*At close June 8. Listed N. Y. Stock Exchange. †Par value $10.

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Liberty Engine Gives Maximum Horsepower

Advisory Committee on Aeronautics Report Shows Advance of Power per Unit of Weight

WASHINGTON, June 10—The Liberty airplane engine, developing a maximum of 450 hp. at a weight of 825 lb., or 1.83 lb. per horsepower, is 50 per cent more powerful and 25 per cent lighter per horsepower than the average airplane engine in service to-day, according to a statement issued by the National Advisory Committee on Aeronautics. In March, 1918, the Liberty engine developed 432 hp. at a weight of 808 lb., or 1.86 lb. per horsepower. In May, following improvements, the Liberty engine developed 450 hp. at a weight of 825 lb., or 1.83 per horsepower. In 1917 the Liberty 12 was 65 per cent more powerful and 28 per cent lighter per horsepower than the average in service for that year.

The average fuel consumption of the Liberty engine to-day is 0.46 lb. per horsepower per hour.

The committee, in its statement, shows that the Wolseley engine in 1913 could obtain only 147 hp. at 1400 r.p.m. from eight cylinders, 5 in. bore by 7 in. stroke, or 18.375 hp. per cylinder. This is the same size cylinder as that used in the Liberty engine, which now gives 450 hp. at 1800 revolutions from 12 cylinders, or 37.5 hp. per cylinder, which is double the power per cylinder obtained in the Wolseley. The Wolseley weighs 4.9 lb. per horsepower as compared with 2.3 lb. for the Liberty at the same speed of 1400 r.p.m.

The statement explains that the first man-carrying airplane flights were made in 1903 with the Wright brothers engine, developing 12 hp. and weighing 152 lb., or 12.7 lb. per horsepower. In 1910, 7 years later, the average horsepower of airplane engines had increased to 54, and the weight decreased to 5.7 lb. per horsepower. In the following 7 years, 1917, the average power output had advanced to 243 hp. and the weight decreased to 2.8 lb. per horsepower. Again in 1918 the horsepower advanced with the perfection of the Liberty engine to 450 hp. for a weight of 825 lb., or 1.83 lb. per horsepower.

The average fuel consumption decreased from 0.8 lb. per horsepower in 1903 to 0.65 lb. in 1914. Since then it has slowly dropped to 0.55 lb. in 1918, and for the Liberty engine to 0.15 lb. The present Liberty engine consumption is approximately 0.46 lb. per horsepower per hour.

The table herewith shows the advance in the average power and weight ratio by years for the engines in actual flying use. The Langley-Manly engine, built in 1901, developing 52 hp. at 2.9 lb. per horsepower, was apparently 9 years ahead of its time in the matter of power output and 16 years ahead in the ratio of horsepower to weight.

	Year	Horsepower	Weight	Weight Per Hp.
Langley-Manly Engine	1901	52	151	2 9
Original Wright Bros.	1903	12	152	12.7
Improved Wright Bros.	1904	16	180	11.4
Improved Wright Bros.	1905	19	180	9.4
Redesigned Wright Bros.	1908	35	182	5.5
Average on market	1910	54	309	5.7
Wolseley engine	1913	147	720	4.9
Average on market	1914	112	437	3.9
Average on market	1915	133	512	3.8
Average on market	1916	185	570	3.1
Average on market	1917	243	693	2.8
Liberty 12-cyl.	1917	400	801	2.0
Liberty 12-cyl. (March)	1918	432	808	1.9
Liberty 12-cyl. (May)	1918	450	825	1.8

Bijur Interferences Not Allowed

WASHINGTON, D. C., June 8—The United States Patent Office has rendered a decision to the effect that Vincent Bendix is the first and original inventor of all the features and improvements which have made the Eclipse-Bendix starter drive the practical and commercial success that it now is. The decision is an outcome of a series of interference cases in the Patent Office in which interference suits were instituted by Jos. Bijur of the Bijur Motor Lighting Co., the Westinghouse Electric & Mfg. Co., through Frank Conrad, and the Northeast Electric Co., through Edward A. Halbleib. Under the decision, the claims of these concerns for priority of invention are not sustained, the decision being to the effect that they are not entitled to patents on the features claimed.

The decision not only sustains the Bendix patents but deprives Bijur, Westinghouse and Northeast of the right to employ in their devices the construction covered in the Bendix patent.

For a number of years the manufacture and sale of the Eclipse-Bendix drive has been carried on by the Eclipse Machine Co., its sale being handled through Brandenburg & Co.

Hundreds of thousands of this device have been built to date. During the past year, Bijur has been manufacturing a device which under these decisions would be considered an infringing device. Westinghouse and Northeast have not manufactured any device to date but have been purchasing the Eclipse-Bendix drive.

Knutson Heads Duluth Dealers

DULUTH, June 10—H. B. Knutson was elected president of the Duluth Automobile Dealers' Assn. at the annual meeting recently. Other officers elected were: Vice-president, Russell W. Sherman; treasurer, Mr. Foster; secretary, Phil Holgate.

May Combine Showrooms as Coal-Saving Method

Philadelphia Fuel Administrator to Prevent Dealers from Keeping All Salesrooms Heated

PHILADELPHIA, June 10—The probability of union showrooms for automobile Row this winter, to save coal—something entirely new for Philadelphia, if not for the whole country—is put forward by County Fuel Administrator Francis A. Lewis, who says he intends to issue an order very shortly which will prevent the North Broad Street dealers and agents from keeping all their showrooms heated during the cold months. Country clubs, other pleasure institutions and churches will come in for restrictive orders in kind, according to Mr. Lewis.

"Automobile dealers and agencies will have to maintain two, three, or possibly more union showrooms, or live in the cold during business hours," said Mr. Lewis.

"Private Consumers First"

This attitude has been taken, it was explained, in order to prevent Philadelphia homes this winter from suffering through a scarcity of anthracite, such as prevailed the last two winters—notably last year, when several incipient riots started in localities where yards had been emptied of coal. The county fuel administrator's slogan now is "private consumers first," and public, or semi-public institutions, except schools, hospitals and the like, will not receive what heretofore has been regarded as their normal supply until any threatened coal scarcity has been averted.

Dealers and agents seen regarding the "union showroom" proposition appeared skeptical, and in most cases said it was too hot just now to talk about shivering in merger showrooms next winter.

Willys-Overland War Profits Over $7,000,000

TOLEDO, June 8—President J. N. Willys stated at the annual meeting that the company's profits on war business should run between $7,000,000 and $8,000,000, or within 20 per cent of the 1917 manufacturing profits. There is little doubt that in the second quarter alone Willys will earn its entire preferred and common dividends for the year. Willys also stated at the meeting that for this new business separate departments and organizations have been created, so that there would be no factory or financing readjustments this year.

The company produced and shipped 1004 airplane motors last month and will ship as many during this month. A contract for 3000 gun carriages has been received by the company, deliveries on which will begin this quarter. It also has a contract totaling $10,000,000 for machining 8-in. shells, which it is peculiarly well able to handle.

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Class B War Trucks Move Shipping Board

Haul 600 Tons of Office Equipment from Washington to New Home in Philadelphia

WASHINGTON, June 8—Hauling 600 tons of office files and equipment from Washington to Philadelphia, and returning from there with 600 tons of Quartermaster supplies, 140 Class B standardized war trucks are demonstrating the possibilities of both motor truck express and return loads.

The trucks under guidance of the Quartermaster department began the moving of the Shipping Board offices last week. The board, occupying thirty-four office buildings and employing 3000 workers, is moving to Philadelphia. The need for speed and the lack of time allowance involved by ordinary railroad freight transportation stimulated the board to seek the fastest shipment scheme. It called upon the army for aid with the result that the Class B war trucks operating in four convoys are performing the work.

The first convoy, coming here from Baltimore early Friday, May 31, arrived at the Shipping Board main office building at 5 p. m. It comprised thirty cargo trucks, two oil and gasoline tank trucks, a light Dodge repair car, a Dodge roadster and a Dodge touring car. Loading of the cargo commenced at 5 p. m. and was completed at 11 p. m. when the trucks moved out of the capital toward Philadelphia. They arrived at Baltimore at 3 a. m., took on spare parts, and left at 4.45, losing time in finding the right road out of the city. At 8 p. m. they reached Philadelphia, discharged the cargo and parked the trucks before midnight, making the complete job of loading in Washington, covering the entire journey and unloading at the destination, in less than 24 hours, work involving 4 to 8 days by the fastest railroad freight. Much time was lost by the first convoy owing to the drivers' unfamiliarity with the roads. Later convoys are cutting the time several hours. The running time for 167 miles was 15¾ hr., an average of 10 m.p.h., with a gross average of 7.6 m.p.h.

After resting at Philadelphia, the convoy took on a load of 100 tons of Army supplies for Camp Holabird, Baltimore, and started its return trip early to-day. Since it left Washington three other convoys have loaded and moved more of the office equipment. The second convoy left here June 1 at 8 a. m. The third left June 1 at 1 p. m. and the fourth at 8 a. m. to-day. The second and third convoys have already reached Philadelphia, discharged their cargoes, taken on Army supplies and started the return trips.

This plan of carrying the furniture to Philadelphia and returning with Quartermaster supplies will be continued for about 10 days, by which time it is expected that equipment belonging to more than 500 offices in Washington will have been transferred to Philadelphia, while more than 2500 tons of Army supplies will have been hauled from Philadelphia to Baltimore.

The trucks carry their mess with them and stop on the road for meals, the men being served quickly at the mess wagon to avoid loss of time. The gasoline tank wagons operate whenever necessary to maintain the supply of both gasoline and oil, and also save the time which would be lost in stopping for gasoline at cities along the route.

The log of the trip of the first convoy follows:

Leave Washington, May 31	11.00 p.m.
Arrive Baltimore, June 1	3.00 a.m.
Leave Baltimore	4.45 a.m.
Arrive Newark, Del.	2.10 p.m.
Leave Newark, Del.	2.40 p.m.
Arrive Wilmington	3.40 p.m.
Leave Wilmington	5.15 p.m.
Arrive Philadelphia	8.00 p.m.

New York's Record Registration

ALBANY, N. Y., June 8—New York state had 76,064 more motor cars registered from the first of the year to May 20 than for the corresponding period of last year, according to the records of the secretary of state's office. The increase has not been confined to any particular section, but has been general extending from the metropolitan district to the smallest hamlet and agricultural sections. Up to May 20 Secretary Hugo had registered 392,951 motor vehicles, exclusive of motorcycles, as compared with 316,887 for the correponding period of last year. The total number registered for last year was 411,567 and about 1400 cars are being registered daily.

Canada Puts Up Bars Against Automobiles

All Cars Costing More Than $1,200 May Not Be Imported Without a Special License

NEW YORK, June 8—Canada has definitely placed automobiles costing more than $1,200 in the luxury class. Under the terms of an Order-in-Council it is forbidden to import automobiles costing $1,200 or more f.o.b. the point of manufacture without a license from the Ministry of Munitions recommended by the War Trade Board. This virtually amounts to an embargo.

The Order-in-Council includes automomiles among nearly 1000 other articles which are classed as being non-essential during the continuance of the war. The action appears to have been taken primarily as a means to protect Canadian industries and not by reason of lack of transportation or for other reasons.

Canadian Importations

During the 10 months ended in April, 1918, Canada imported from the United States 11,700 automobiles valued at $9,098,439 and 849 trucks valued at $1,096,492. For the month of April Canadian imports from the United States reached 1815 automobiles valued at $1,574,821, and 142 trucks valued at $208,998. During the calendar year of 1917 Canada imported 16,438 American automobiles valued at $12,401,705.

Canadian import duties at present are very heavy. In addition to the regular duty of 35 per cent there is an extra import duty of 11½ per cent as well as a special internal revenue tax of 10 per cent.

New Series for United Motors

GRAND RAPIDS, June 10—The United Motors Co. will in five weeks start production on a new series of models, including 1½-, 2½-, 3½- and 5-ton capacities. The models will be ready for shipment in 60 days, according to the company. It is estimated that an output of 50 trucks a month will be maintained. The prices of the models have not as yet been determined.

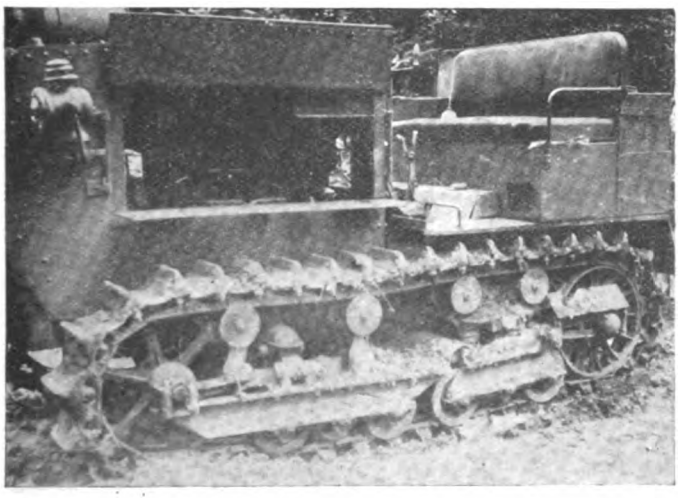


When the trucks arrived at the Washington offices, the equipment was ready to be loaded

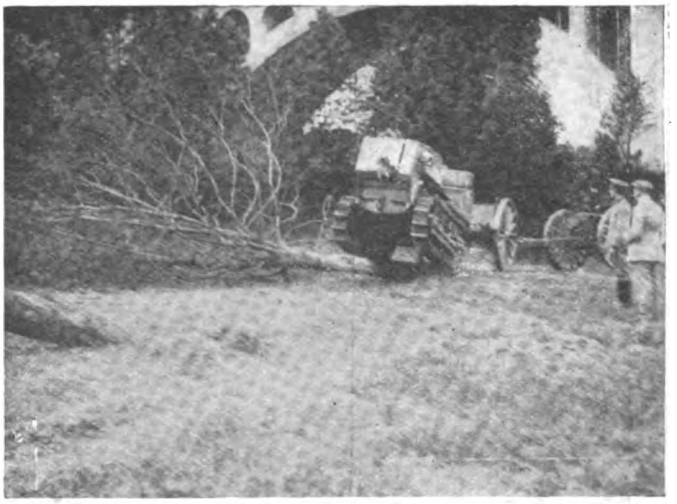


The truck train hauling Shipping Board office equipment en route from Philadelphia to Washington

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The lugs of the new 5-ton standardized tractor are so arranged that 14 come in contact with the ground at one time



Hauling a 5-in. howitzer mounted on a gun carriage, the tractor had no difficulty in clearing lugs and climbing through trees

Urge Establishment of More Rural Expresses

Truck Committee of N. A. C. C. Is Working to Have These Lines Throughout the Country

NEW YORK, June 10—The National Motor Truck Committee of the N. A. C. C. has commenced active work to assist in the establishment of rural motor express lines throughout the United States.

As a starter the committee has issued a series of pamphlets giving in detail a list of services to be rendered by such lines, scale of charges, a simple cost sheet, suggestions for the preliminary survey of roads and canvass of prospective customers, operating plans and general suggestions.

District representatives are being appointed in all of the principal centers and the committee has undertaken to interest in the movement the 115 motor vehicle manufacturing members of the chamber and between 30,000 and 40,000 dealers.

Members of the association have been asked to write letters to 25 dealers each by way of increasing interest in the establishment of these routes, which will mean an increase in the number of trucks sold as well as serving a useful and patriotic service in increasing the distribution of food products.

Following are the names of men who have been requested to act as district representatives:

C. E. Griffin, Pres., Wheeling District Automobile Dealers' Ass'n, Wheeling, W. Va.

C. G. Powell, Secy. and Treas., Omaha Automobile Trade Ass'n, Inc., Omaha.

J. J. Gibson, Secy., Buffalo Automobile Dealers' Ass'n, Buffalo.

Paul LeHardy, Secy., Rochester Automobile Trade Ass'n, Rochester.

H. T. Gardner, Syracuse Automobile Dealers' Ass'n, Inc., Syracuse.

A. A. Ledermann, Pres., Utica Motor Dealers' Ass'n, Utica.

H. A. Bonnell, Secy. and Treas., N. J. Automobile Exhibition Co., Newark.

H. W. Bonnell, Secy., Milwaukee Automobile Dealers' Ass'n, Inc., Milwaukee.

B. R. Webb, Pres., San Antonio Automobile Trades Ass'n, San Antonio.

H. O. Brunton, Pres., Cincinnati Automobile Dealers' Ass'n, Cincinnati.

J. M. Gasser, Pres., Toledo Automobile Dealers' Ass'n, Toledo.

J. S. Fassett, Pres., Philadelphia Auto Trade Ass'n, Philadelphia.

W. C. Brown, Pres., Western Automobile Trade Ass'n, Denver.

Geo. D. McCutcheon, Pres., Atlanta Automobile Ass'n, Atlanta.

W. G. Tennant, Secy., Chicago Automobile Trade Ass'n, Chicago.

Bruce M. Wylie, Pres., Indianapolis Automobile Trade Ass'n, Indianapolis.

Dean Schooler, Pres., Des Moines Automobile Dealers' Ass'n, Des Moines.

W. H. Imes, Pres., Automobile Trade Ass'n of Kansas, Topeka.

Prince Wells, Pres., Louisville Automobile Dealers' Ass'n, Louisville.

H. B. Chandler, Secy., Portland Automobile Dealers' Ass'n, Portland, Maine.

Chester I. Campbell, Secy., Boston Commercial Motor Vehicle Ass'n, Boston.

H. E. Pence, Pres., Minneapolis Automobile Trade Ass'n, Minneapolis.

E. E. Peake, Secy. and Treas., Kansas City Motor Car Dealers' Ass'n, Kansas City.

E. V. Stratton, Hudson Motor Car Co., Albany.

F. W. A. Vesper, Vesper-Buick Co., St. Louis.

Frederick H. Caley, Hollenden Hotel, Cleveland.

A. L. Boorse, Pres., Birmingham Automobile & Accessory Ass'n, Birmingham.

J. Walter Drake, Hupp Motor Car Co., Detroit.

M. S. Bulkley, Autocar Sales & Service Co., San Francisco.

H. E. Mitchell, San Francisco.

W. S. Gilbreath, Detroit Automobile Club, Detroit.

Continental Receives Part of Government Order

DETROIT, June 8—Of the order for 8000 Class B motors placed by the Government, the Continental Motor Co. has received a considerable portion. Deliveries will begin from this plant by July 1.

Standardized Tractor Put Through Its Paces

Successful Demonstrations Held in Washington Show Ease with Which Feats Are Performed

WASHINGTON, June 10—There was held here last week a demonstration of the standardized 5-ton artillery tractor recently designed and completed by the Ordnance Department. Secretary of War Newton D. Baker, General Peyton C. March and many Senators, Congressmen and British and French army officials were present. The tests, which were successful, were held in a ravine in an outlying section of the city, where the mud was 12 to 16 in. deep.

The tractor, including the Liberty Class B truck engine with an overhead valve arrangement, is being manufactured by the Maxwell and Reo companies. It weighs 9000 lbs. and carries smooth chains for driving over pavements, and is so arranged that lugs can be attached to the driving chains in 15 minutes by 4 men, to enable it to pull through mud or obstacles. There are 14 lugs in contact with the ground at one time.

The engine develops 55 hp. and propels the tractor at from 2 to 12 m.p.h. Six thousand of the tractors have been ordered, and several have been completed and undergoing tests for some time. The one used in the demonstration to-day has more than 3000 miles of service to its credit.

During the tests the tractor, hauling a 6-in. howitzer on a gun carriage, climbed down and up a 45-deg. grade. In the climb up two tractors of the same type were used, the one, camouflaged, also exhibiting turning powers by revolving at high speeds in the brush and grass. Other tests included climbing through trees, over logs and through mud where the gun carriage wheels sank up to the hubs.

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-62	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	$1595	....	$1595	$2150	$2150	...	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1145	$1095	...	....	1395	....	..
AMERICAN																	
B	6-3½x5	23.4	G & D	Zenith	G & D	DD	3	122	32x4	SS	1645	1595	1695	....	....	....	....
ANDERSON																	
20	6-3½x4½	25.3	Conn	Zenith	Wsths	DP	3	120	33x4	SS	**1465	....	....	....	2165	....	....
400-F	6-3½x5½	29.4	Bosch	Stmbg	Wsths	DD	3	120	33x4	SS	**1925	....	....	....	....	....	....
APPERSON																	
8-18	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	34x4 / 32x4½	SS	†2550	....	2550 / 3500	....	....	....	....
8th Anniversary																	
AUBURN																	
6-39-B	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	120	34x4	SS	1345	1345		....		..	1595
6-44	6-3½x5½	29.4	Delco	Rafid	Delco	DP	3	131	35x4½	SS	....	1685	1685	....	2450	...	1985
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142	34x4½	QD	3750	3750	4000	4550	5000	5250	....
BELL																	
18	4-3½x4½	22.5	A.Kent	Zenith	Dyneto	D	3	114	32x3½	QD	†995	995	....	....	....	....	....
BIDDLE																	
H	4-3½x5½	22.5	Eisman	Zenith	G & D	DP	4	121	32x4	QD	2600	....	†2650	....	4100	4000	....
BOUR-DAVIS																	
18B	6-3½x5½	29.4	West.	Stmbg	West.	DP	3	118	33x4½	QD	....	1785	....	....	....	....	....
	4-3½x5½	22.5	West.	Rafid	West.	DP	3	118	32x4½	....	....	1680	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	5500	....	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3¼x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	825	825	....	....	....	....	850
BUICK																	
E 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	1185	1845	
E 44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	....	†1695	....	....	1265
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	..
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	125 / 132	35x5	SS	2970	†2970	2970	....	3840	4160	
CASE																	
U	6-3½x5½	29.4	Wsths	Rafid	Wsths	D	3	125	35x4½	SS	†1875	1875	1875	...	**2375	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wsths	DP	3	117 / 122	32x4 / 34x4	SS	1565	1565	1615	1625	1950	2925	....
CHANDLER																	
	6-3½x5	29.4	Bosch	Rafid	Wsths	DP	3	123	34x4	SS	†1595	†1675	1595	2195	2295	2895	....
CHEVROLET																	
490	4-3½x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3½	C	660	685	....	....	1060	....	....
FA	4-3½x5½	21.7	Remy	Zenith	A-Lite	C	3	108	33x4	SS	935	935	....	....	1475	....	....
D	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	120	34x4	SS	†1550	1550	....	....	....	....	....
COLE																	
870	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	33x5	SS	2395	†2395	2395	2495	2595 / 2795	....	....
COLUMBIA																	
C&D	6-3½x4½	25.3	A.Kent	Stmbg	W.Lard	DP	3	115	32x4	....	†1495	1450	....	....	2395	....	....
COMET																	
C-50	6-3½x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	....	....	....	1285	....	....	....	....
COMMONWEALTH																	
4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	115	32x3½	SS	†995	1095	....	....	....	....	....
CROW-ELKHART																	
CE-36	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114	32x3½	SS	995	995	....	1295	1395	....	....
CUNNINGHAM																	
	8-3½x5	45.0	Delco	Stmbg	West	D	3	132 / 142	35x5 / 37x5	....	....	4250 / 4750	....	....	....	....	..
DANIELS																	
B	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	3500	3500	3500	....	....	....	....
DAVIS																	
H, I	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1585	1585	....	1850	....	....
J, I	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	125	34x4½	....	....	1950	1950	....	....	....	....
DIXIE FLYER																	
L835	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	1095	1095	....	....	1375	..	...

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	$830			$1095	....	....	$865
B	6-3½x4½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	1150	$1150	*$1150	1650	$1650	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3750	3700	3750	....	5180	5250	...
MAXWELL																	
25	4-3½x4½	21.0	A.Kent	K D	Simms	C	3	109	30x3½	C	†825	825	....	....	1275	1275 / 1175	935
McFARLAN																	
	6-4½x6	48.6	Mar'to	Stmbg	Wsths	DP	3	136	35x5	QD	3900	3900	3900	....	5000	5050	....
MERCER																	
Series 4	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3850	*3850	....	....	....	....	....
METZ																	
25	4-3½x4	24.0	A.Kent	A.W.T.	Wsths	F	.	108	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.3	Remy	Rafid	Remy	C	3	120	32x4	SS	1350	1350	....	1900	2000	....	300x
C-42	6-3½x5	29.4	Remy	Stmbg	Remy	C	3	127	34x4	SS	‡1565	1625	1625	2210	2375	2850	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1750	1750	....	....	2280	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†2375	....	2375	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	110	32x3½	SS	995	995	....	....	....	....	....
J	6-3½x4½	25.3	Conn	Stmbg	Dyneto	D	3	117	33x4	SS	1295	1295	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	31x3½	QD	565	†635	....	....	965	....	....
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x3½	QD	....	995	....	....	1850	....	....
MOON																	
6-36	6-2½x4½	19.8	Delco	Titan	Wagner	DP	3	114	32x3½	SS	.....	1295	....	....	....	....	....
6-66	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1985	....	1985	2650	2650	....	....
MOORE																	
30	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	106	30x3½	....	695	....	....	....	....	....	....
MURRAY																	
	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	....	2800	2800	2800	3600	....	4000	....
NASH																	
682													1545				
681-683	6-3½x5	25.3	Delco	Marvel	Delco	P	3	127 / 121	34x4	SS	†1395	1395	....	2085	2085	....	....
684-685																	
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafid	Wsths	C	3	128	34x4½	QDR	2450	†2450	2450	2945	3120	....	....
Twelve	12-2½x4½	39.6	Delco	Rafid	Bijur	C	3	128	34x4½	QDR	3150	†3050	3050	3545	3720	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	....	....	....
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1050	1050	....	1550	1550	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1550	....	....	....	....
37	6-2½x4½	18.9	Remy	Johnson	Remy	C	3	112	32x4	SS	†1195	1195	....	1595	1695	....	....
OLYMPIAN																	
	4-3½x4½	16.9	Conn	Stmbg	A-Lite	D	3	112	32x3½	....	†1085	1085	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	112	32x4	SS	†965	965	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Titan	A-Lite	C	3	104 / 106	31x4	C	835	850	†875	....	1340	....	....
85B6	6-3½x4½	25.3	.....	Titan	A-Lite	C	3	116	32x4	....	1195	1195	....	1420	1620	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS	.....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.7						136			‡3950	‡3950	3950	....	....	5000	....
W-42	6-4 x5½	38.4	Bosch	Zenith	O-M	OM	6	142	35x5	SS	....	....	5300	....	6300	6300	....
PACKARD																	
3-35								136			....	....	4300	....	....	5850	....
3-25	12-3 x5	43.2	Delco	Own	Bijur	DD	3	128	35x5	QD	....	3950	3950	5300	....	5500	....
PAIGE																	
6-39	6-3½x5	23.4	Remy	Stmbg	G & D	D	3	117	32x4	SS	1395	1395	....	....	1925	....	....
6-55	6-3½x5½	29.4	Remy	Rafid	Remy	D	3	127	35x4½	SS	....	....	183(	2850	....	3230	....

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DOBLE-DETROIT																			
2-5	x4	....	Doble	Stmbg	Wagner	..	.	135	36x5	....	....	....	3750	....	....	....	....
DODGE BROTHERS																			
	4-3½x4½	24.0	Delco	Stewart	N.E.	D	3	114	{32x3½ 33x4	SS	985	985	....	1425	1425	....	....
DORRIS																			
6-80	6-4	x5	38.4	Bosch	Stmbg	Wsths	DD	3	132	33x5	SS	....	....	....	....	....	....	....	....
DORT																			
11	4-3½	x5	19.6	Conn	Carter	Wsths	C	3	105	30x3½	QD	925	925	**1060	1325	1325	....	....
DOUGLAS	8-3½	x5	33.8	Wsths	Zenith	Wsths	D	3	122	34x4	SS	...	2000	....	....	....	....	..
ELCAR																			
D.F.	4-3½	x5	19.6	A.Kent	L-O	Dyneto	DP	3	116	{33x4 32x3½	SS	....	1095	1095	....	{1625 1795	....	....
	6-3½	x4½	25.3	A.Kent	Stmbg	Dyneto	P	3	116	33x4	....	...,	1295	1295	....	....	....	....
ELGIN																			
A	6-3	x4½	21.6	Remy	Stmbg	Wagner	DP	3	117	33x4	....	†1195	1165	....	....	**1645	....	....
EMPIRE																			
50-51	4-3½	x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS	1165	1125	....	....	....	....	....
70-A	6-3½	x4½	25.3	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	....	1345	1375	....	....	....	....
73	.....	....	.....	.....	.....	.....	.	...	....	....	....	....	†1360	....	....	....	....	....
ESSEX	4-3½	x5	18.2	Delco	Own	Delco	D	3	108½	32x4	....	....	1395	....	....	....	....	....
FIAT																			
E-17	4-6½	x6½	44.1	Bosch	Zenith	Wsths	D	4	140	35x5	QD	....	....	5500	....	....	6500	....
FORD																			
T	4-3½	x4	22.5	Own	{Holly Kngstn	.....	D	2	100	30x3½r	C	435	450	....	650	785	....	....
FRANKLIN																			
9	6-3½	x4	25.3	A.Kent	Own	Dyneto	D	3	115	33x4½	SS	2400	2450	†2450	....	3350	3400	....
GLIDE																			
6-40	6-3½	x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	....
GRANT																			
G	6-3	x4½	21.6	Remy	Stmbg	Wagner	C	3	114	32x3½	....	‡1095	1095	....	1575	1595	....	1350
HALLADAY																			
S	6-3½	x5	23.4	A-Lite	Zenith	Wsths	D	3	{120	34x4	SS	‡1375	1375	....	....	....	....	....
R	.....	....	.....	.....	.....	.....	..	.	{122	....		1530	1530	....	....	....	....	....
HARROUN																			
	4-3½	x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....	....	895	....	....	....	....	....
HARVARD																			
4-30	4-3	x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	785	†985	....	....	....	....	....
HAYNES																			
38	6-3½	x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1850	....	....	....	....	....
39	6-3½	x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1950	....	1950	2660	....	....	....
44	12-3½	x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2910	....	2910	....	3460	....	....
HOLLIER																			
206	6-3½	x4½	25.3	Remy	Stmbg	Splitdf	C	3	116	32x4	SS	....	1485	....	....	....	....	....
188	8-3	x4½	28.8	A.Kent	Stewart	Splitdf	C	3	116	34x4	SS	†1385	1385	....	....	....	....	....
HUDSON																			
Super-6	6-3½	x5	29.4	Delco	Own	Delco	D	3	125½	34x4*	SS	....	†2050	1950	....	2750	3400	....
HUPMOBILE																			
R	4-3½	x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x4	....	1350	1350	....	....	....	....	....
INTER-STATE																			
T	4-3½	x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	950	1000	1025	....	....	....	....
JACKSON																			
349	8-3	x3½	28.8	A.Lite	Zenith	A-Lite	DP	3	118	34x4	SS	†1495	1495	1570	....	2195	....	....
JONES																			
27-ABC	6-3½	x5½	29.4	Remy	Rafid	Wsths	DP	3	125	34x4	SS	†1875	1875	1875	....	2750	....	....
JORDAN																			
J-60	6-3½	x5½	29.4	Delco	Stmbg	Bijur	DD	3	127	33x4½	SS	1995	†1995	1995	....	2750	3500	....
KING																			
F	8-3	x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	....	†2350	2150	....	**2950	....	....
KISSEL																			
100-pt.	6-3½	x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1495	1495	1585	1935	1935	....	1935
Double-6	12-2½	x5	39.6	Delco	Stmbg	Own	DD	3	128	34x4½	....	1585	....	2450	....	2850	....	2850
KLINE																			
6-38	6-3½	x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1495	1495	†1495	....	2200	....	....
LEXINGTON																			
6-O	6-3½	x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	....	1385	....	....	1545	....	....
6-R	6-3½	x4½	25.3	Conn	Rafid	Wsths	P	3	122	34x4	QD	....	1585	1585	....	1785	....	....
LIBERTY																			
10-B	6-3½	x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1385	1385	....	....	1925	....	....
LOCOMOBILE																			
E-38	6-4½	x5	43.3	Berling	B & Ball	Wsths	DD	4	139	37x5	QD	†5150	*5000	5000	....	....	6200	....
E-48	6-4½	x5½	48.6	Berling	B & Ball	Wsths	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7200	....
LOZIER																			
84	4-4½	x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	....	....	..
82	6-3½	x6	36.0	Eisman	Rafid	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	.. ..	....
LUVERNE																			
17	6-3½	x5	33.7	Bosch	Schebler	Bosch	DD	.	132	35x4½	SS	....	....	1650	....	....	....	....
MADISON									{124										
	6-3½	x5	23.4	Remy	Rafid	Remy	DD	3	{120	34x4	SS	†1485	1485	1485	....	....	....	....

PAN-AMERICAN																			
G-5	6-3½	x5	38.4	G & D	Rafid	G & D	D	3	120	33x4½	SS	....	1650	....	1650	....	1950	....
PATERSON																			
6-45	6-3½	x4½	25.3	Delco	Stmbg	Delco	C	3	120	32x4	C	†1295	1265	1295	....	**1795	....	....
PEERLESS																			
56	8-3½	x5	33.8	A.Kent	B&Ball	A-Lite	DD	3	125	35x4½	SS	†2550	....	2550	3050	3250	3690	....
PIERCE-ARROW																			
38-C-4	6-4	x5½	38.4	Bosch	Own	Wsths	C	4	134	34x4½	QD	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½	x5½	48.6	Bosch	Own	Wsths*	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5	x7	60.0	Bosch	Own	Wsths	C	4	147½	36x5½	QD	†6400	6400	6500	7800	....	....	....
PILOT																			
6-45	6-3½	x5	23.4	Delco	Titan	Delco	DP	3	120	32x4	SS	†1395	1395	....	....	....	....	....
PREMIER																			
6-C	6-3½	x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	....	†2285	2285	....	....	....	....
PRINCESS																			
36-F	4-3½	x4½	22.5	Splitdf	Schebler	Disco	D	3	106	32x3½	....	875	875	875	....	....	....	....
REGAL																			
J	4-3½	x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD	....	795	....	....	....	....	....
REO																			
	6-3½	x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	1550	1550	....	....	....	....
	4-4½	x4½	27.2	Remy	Johnson	Remy	DD	3	120	34x4	SS	1225	1225	....	....	....	....	....
REVERE																			
	4-4½	x6	30.6	Bosch	Stmbg	Bijur	DD	4	130	32x4½	....	....	....	....	....	....	....	....
ROAMER																			
C-6-54	6-3½	x5½	29.4	Bosch	Stmbg	Bijur	DP	3	128	32x4	SS	2475	†2375	....	....	....	....	....
D-4-75	4-4	x6	25.6	Bosch	Stmbg	Bijur	DP	3	128	32x4½	SS	....	....	2475	....	3250	....	....
ROSS																			
	8-3½	x5	33.8	.....	.....	W.Lnrd	DD	3	130	35x4½	SS	‡1850	....	1850	....	....	....	....
SAXON																			
S-4	6-2½	x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	935	1045	....	1395	....	....	....
SAYERS																			
SIX-42	6-3½	x4½	25.3	Delco	.....	Delco	P	3	118	32x4	....	....	1395	....	....	....	....	....
SCRIPPS-BOOTH																			
D&H	8-2½	x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1285	....	....	....	....	...	....
G	4-3½	x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	‡935	....	....	....	....	....	....
Six-39	6-2½	x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1195	1195	....	....	....	....	....
SIMPLEX																			
V	6-4½	x6½	45.9	Eisman	Nwcmb	Bosch	D	4	143½	37x5r	QD	Chassis	7000	....	....	....	....	....
SINGER																			
	6-4	x5½	38.4	Bosch	Rafid	Wsths	DD	4	139	35x5	QD	4200	†4325	4100	....	5250	5125	....
STANDARD																			
G	8-3½	x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	....	†2450	....	2450	....	3500	4000	....
STANLEY																			
Steamer	2-4	x5	12.8	.....	.....	.....	..	.	130	35x4½	SS	....	†2750	2800	....	....	....	....
STEARNS																			
SKL4	4-3½	x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS	†1935	1935	2175	2400	2575	3200	....
SK8	8-3½	x5	33.8	Remy	Rafid	Wsths	DD	3	125	35x4½	SS	†2700	....	2700	3200	....	3875	....
STEPHENS																			
Salient Six	6-3½	x4½	25.3	Delco	Stmbg	Delco	P	3	118	32x4	SS	1585	1585	†1650	....	2085	....	....
STUDEBAKER																			
SH-4-40	4-3½	x5	19.6	Remy	Schebler	Wagner	C	3	112	32x3½	SS	1050	995	....	....	1525	....	....
EH-6-50	6-3½	x5	29.4	Remy	B&Ball	Wagner	C	3	119	32x4	SS	1450	1395	†1395	....	....	....	....
E-G-6	6-3½	x5	36.0	Remy	B&Ball	Wagner	C	3	126	33x4½	....	....	1795	....	....	1950	....	....
STUTZ																			
S-7	4-4½	x5	30.6	Delco	Stmbg	Remy	C	3	{120 130	32x4½	SS	2550	†2650	*2750	....	....	....	....
SUN																			
17	6-3½	x5	29.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	....	....	....	....
TEMPLAR																			
A-445	4-3½	x5½	18.2	Remy	Zenith	Remy	P	3	118	32x4	SS	2385	2085	....	....	....	....	....
VELIE																			
38	6-3½	x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS	1390	1390	†1390	....	1935	....	....
39	6-3½	x5½	29.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS	....	....	1645	....	....	....	....
WESTCOTT																			
S-18	6-3½	x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1990	2290	2090	**2890	**2890	....	....
WHITE																			
16-Valve	4-4½	x5½	28.9	.....	Own	L-N	P	4	{124½ 137½	35x5	U	†5000	....	†5000	6050	6050	6200	....
WILLYS-KNIGHT																			
88-4	4-4½	x4½	27.2	Conn	Titan	A-Lite	C	3	121	34x4½	SS	....	....	1625	2375	2325	2425	....
88-8	8-3½	x4	36.4	Remy	Zenith	A-Lite	C	3	125	34x4½	SS	†2550	....	2100	....	2800	2900	....
WILLYS																			
89-6	6-3½	x5½	29.4	Conn	Titan	A-Lite	C	3	120	33x4½	SS	†1450	....	1450	....	1330	....	....
WINTON																			
33	6-3½	x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	3150	3150	3200	4150	4400	4400	....
48	6-4½	x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3850	3850	3850	4850	5100	5100	....
WOOD'S																			
Dual Power	4-2½	x4	12.1	A.Kent	Stmbg	Own	Mag	.	124	35x4½	QD	....	....	....	2950	....	....	....

*6-passenger. †4-passenger. ‡3-passenger. t-town car.
**Convertible.

ABBREVIATIONS—"A. Kent" Atwater Kent, "A-Lite" Auto-Lite, "B. & Ball" Ball & Ball," "Conn" Connecticut, "G & D" Gray & Davis, "Eisman" Eisemann, "L-N" Leece-Neville, "N. E." North East, "Nwcmb" Newcomb, "O-M" Owen Magnetic, "Rafid" Rayfield, "Stmbg" Stromberg, "Splitdf" Splitdorf, "Titan" Tillottson, "Wsths" Westinghouse, "W. Lnrd" Ward Leonard, "D" Disk, "DD" Dry Disk, "P" Plate, "DP" Dry Plate, "C" Cone, "F" Friction, "G" Gearless, "CU" Control Unit, "Mag" Magnetic, "SS" Straightside, "QD" Quick Detachable, "C" Clincher, "DC" Detachable Clincher, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers, . NOTE—37¼x5½ r means that the rear tires are 37x5½ and the front are smaller. Detachable top, 300x, means $300 extra.

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Return Loads Developments

Philadelphia, Detroit and New York Perfecting Their Organizations

PHILADELPHIA, June 9—Development of the Return Loads Bureau of the Philadelphia Chamber of Commerce has reached the point where 150 owners of motor trucks doing inter-city hauling have registered with the bureau and indications are that this city is to become the distributing point for an increasingly wide manufacturing and agricultural area. Philadelphia truck owners will be represented at the meeting of Return Loads Bureaus to be held in New York Thursday and Friday, the object being to co-ordinate the work of the various bureaus along the Atlantic coast and to adopt a uniform system of operation. The most important question to the Philadelphia truckmen just now is that of through traffic. It is expected that arrangements will be made whereby shipments from Philadelphia to Boston can be transported to New York by a regularly established line which will take them to New Haven, or Hartford; here by another transfer they can be placed on trucks bound for Boston. In this way it is assumed that thousands of tons of through freight can be handled at minimum expense by auto truck delivery. Short lines now confined to the transportation of merchandise from one city to another thus will be utilized in through traffic service under the proposed transfer system.

Detroit's Return Loads Bureau Meets Difficulties

DETROIT, June 8—The Return Loads Bureau is experiencing some difficulty in getting started. The response from the truck men has not been as expected. Only a few have expressed a desire to co-operate with the movement. A letter was sent to all the shippers in this territory advising them of the existence of the bureau and asking them to take advantage of its services. The letter follows, in part:

Complying with a request made by the Council of National Defense, a Return Load Bureau has been established in Detroit. Arrangements have been completed for an exchange of service to points in the State and to transit points in other States. The effort of the Bureau is to relieve freight congestion by a greater use of motor truck highway transport.

The Transportation Department of the Board of Commerce urges the largest measure of co-operation and use of this service.

The Bureau is in charge of John McNally . . . If you wish to send a load by truck to any point notify the Return Load Bureau and an effort will be made to obtain a return load for your truck. . . . No charge is made by the Bureau for its service at present. It will assume no obligation or risk, merely serving as a bureau of information, bringing together the truck and the person wishing to have goods moved. Rates are left to the shipper and truckman. Similar service is being established by boards of trade and chambers of commerce throughout the country, and the success of the idea seems to lie principally in the extent to which the service is used.

McNally states that the reason the return loads movement is not meeting with greater favor here lies in the fact that there are not enough cities in this immediate territory that have very much intercity freight transportation as compared with the eastern cities, where the idea is meeting with greater success. More large cities are contained within a certain area in the east than exist in this section in an equal area. This, according to McNally, accounts for the slowness with which the bureau is being organized here.

Pittsburgh Branch for Miller

PITTSBURGH, June 10—The firm of Stewart & Harper, wholesale distributers for the Miller Rubber Co., Akron, having been dissolved and the Miller tire business in Pittsburgh having assumed unexpectedly large proportions, the Miller Rubber Co. has established a direct factory branch in that city. It is managed by S. S. Stewart, formerly of Stewart & Harper, and is at 5968 Baum Boulevard.

Return Loads Meeting, New York, June 13

WASHINGTON, D. C., June 10—In conjunction with the Highways Transport Committee of the Council of National Defense in Washington, D. C., the Return Loads Bureaus organization in New York, Connecticut, Rhode Island, Massachusetts, New Jersey, Pennsylvania and Delaware will hold a one-day meeting in New York City on June 13 for the purpose of correlating the work of the bureaus in those states. The meeting will begin at 10 a. m., and will be held at the New York City Return Loads Bureau, which is located in the Merchants Assn. offices in the Woolworth Building.

The purpose of the meeting is to secure better co-operation from the different bureaus along the Atlantic seaboard. While most of the bureaus have been able to get loads going out of their own cities, they have not been able to get return loads for their trucks from other cities, and it is hoped that one result of the meeting will be some plan whereby greater incoming loads can be secured.

Overland and Curtiss Get New War Business

TOLEDO, June 10—It is reported that nearly $25,000,000 of new government business has been obtained by the Willys-Overland Co. and the Curtiss Aeroplane & Motors Co. the nature of which has not yet been disclosed. According to a statement made by John Willys, an average of 20 planes and 4 flying boats are being produced daily by the Curtiss and Overland companies. To date the plants have built between $5,000,000 and $6,000,000 worth of airplanes and flying boats for the United States and the Allies.

Durant Enters Saginaw Iron

SAGINAW, MICH., June 7—W. C. Durant and his associates have taken most of the additional $250,000 representing the increased capitalization of the Saginaw Malleable Iron Co., which now has a capital stock of $750,000. The present capacity of the plant will be doubled upon completion of a new foundry building, 400 x 136, connecting the present unit, making a structure, 875 x 136. Other auxiliary buildings will be erected, and two new furnaces will be added. The present working force of over 300 will be doubled, and the daily output of 65 tons of castings will be increased to 130 tons. Almost the entire plant is at present engaged in work for the ordnance department, supplying malleable castings for the head and base of the Stokes trench mortar shells which are being assembled at the Marquette plant. The following officers were elected at the annual stockholders' meeting: President and general manager, C. F. Drozeski; vice-president, W. J. Wickee; treasurer, George E. Hannum; secretary, Julius B. Kirby; assistant general manager, Donald A. Drozeski.

Coming Events

Racing

Chicago	Chicago Speedway	June 22
Cincinnati	Cincinnati Speedway	July 4

Conventions

Hot Springs, Va.	Convention National Association of Automobile Accessory Jobbers.	June 8-12

Show

Dallas, Tex.	Seventh Annual Texas Automobile Show Texas State Fair.	Oct. 14-27

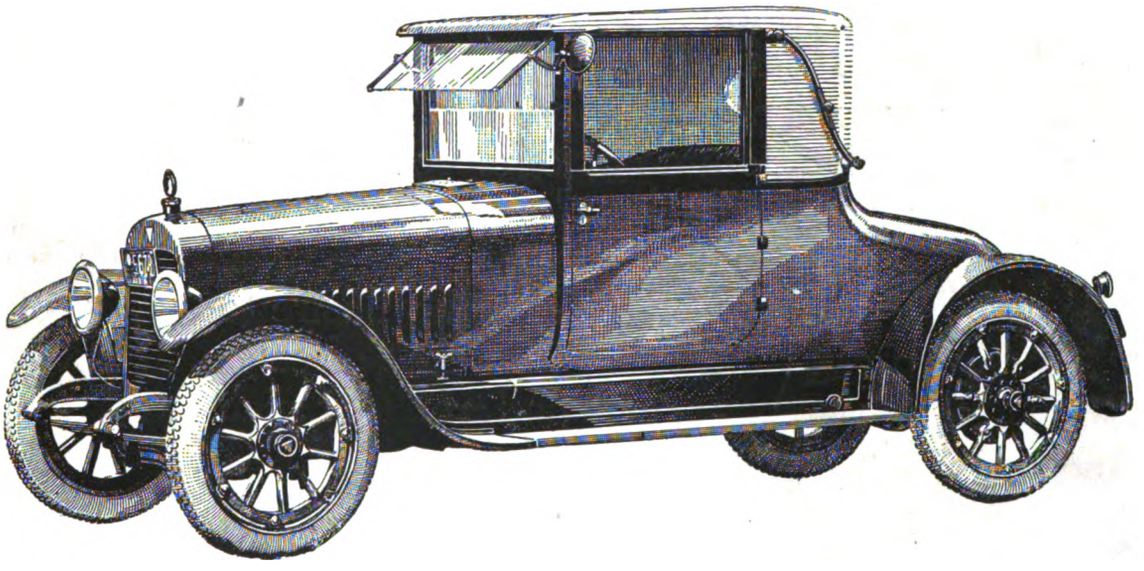
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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume LV
No. 12

New York, June 19, 1918

Ten cents a co
Two dollars a ye



A New Type Super-Six

This is the Hudson Runabout Landau, distinctively a Hudson creation. The new car of the year.

It is just the model for the owner who frequently does his own driving, who wants a car of the cabriolet type, or an open roadster. Its wonderful riding qualities over rough roads make it the car for men who make many trips from one town to another.

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Hudson Motor Car Company
Detroit, Mich.

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Advertisers' Index—Next to Last Page

REPORT OF JOBBERS' CONVENTION

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FRANKLY, we are not now in a position to add to either the Nash passenger car or Nash truck dealer organizations. However, when the entire volume of our production is again available to buyers, both these Nash franchises should prove most attractive to dealers who desire to profit from a large volume of sales of passenger cars and trucks of such high value as the Nash.

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MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

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In men and in mechanisms carrying burdens of responsibility, failure is the one unpardonable sin. The pleading of unpreparedness is no excuse—least of all, when a desire to save a little money lies at the root of that unpreparedness. To succeed—to be adequate—to meet responsibilities—are essentials beside which cost cannot be considered.

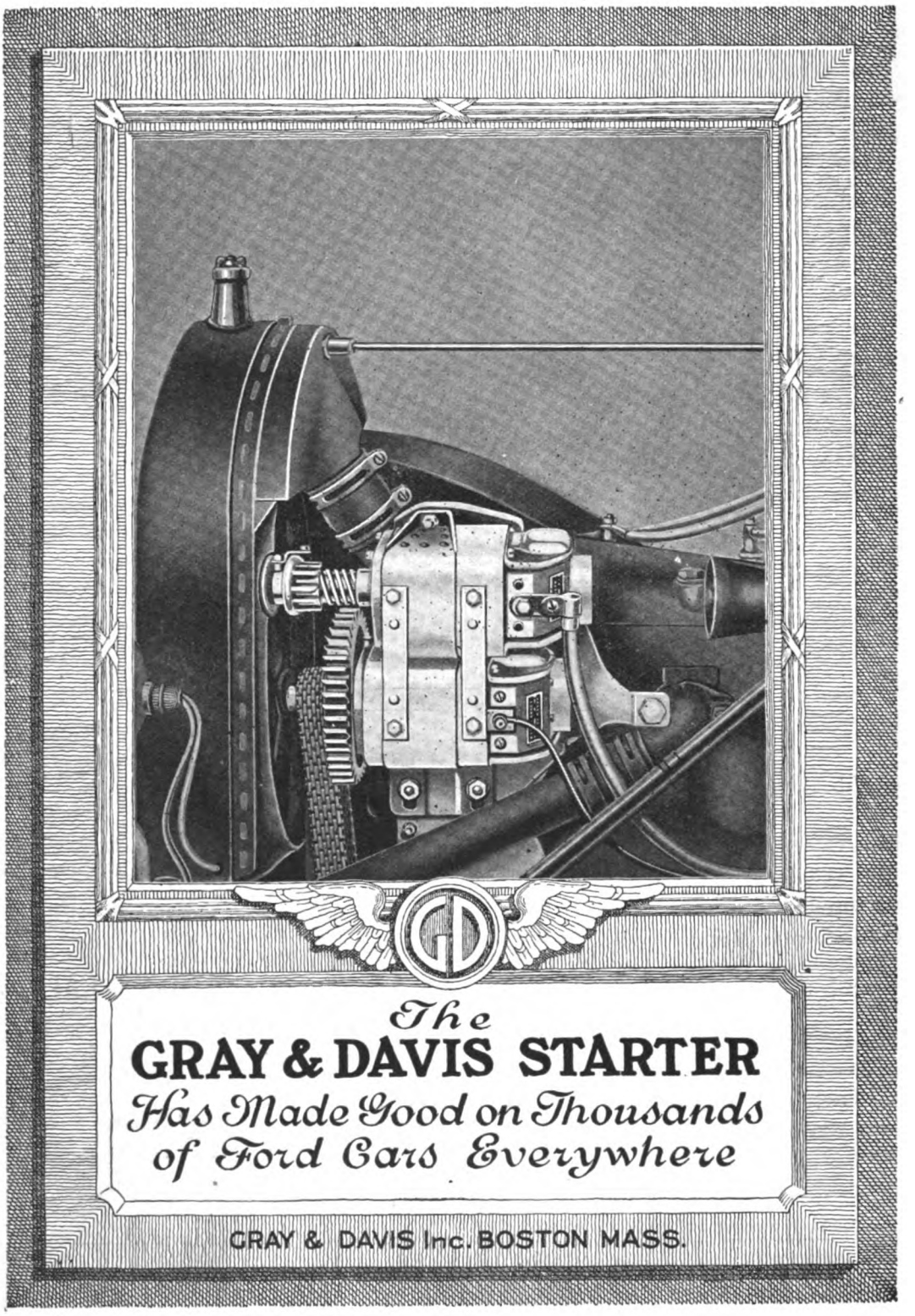
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and our interesting proposition**

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MOTOR WORLD for DEALERS, JOBBERS AND GARAGEMEN

Vol. LV New York, U. S. A., Wednesday, June 19, 1918 No. 12

Jobbers Going Ahead With Their Fall Exhibit

Will Stage Automotive Trade's First Business Function at Same Time as October Convention

NAME MAY BE CHANGED TO INTERNATIONAL AUTOMOTIVE EQUIPMENT ASSOCIATION

Pair of Socks Brings $10,255.50 for Red Cross at Hot Springs Meeting

By Ray W. Sherman

HOT SPRINGS, VA., June 13—The National Association of Automobile Accessory Jobbers, which has been talking for some time about holding a trade exposition next fall, definitely decided, at its summer meeting at the Homestead Hotel, to go ahead with the project.

The convention and exhibit will be held in Chicago, Oct. 28-Nov. 2 inclusive.

The organization also began a move which likely will result in the change of its name to International Automotive Equipment Association.

Not the least of the achievements of the convention was the sale of a pair of Red Cross socks for $10,255.50. They were knit by Mrs. Ludwig Wolff, mother of Mrs. T. M. Brooks, Chicago. The highest bidder was Robert A. Stranahan, president of the Champion Spark Plug Co.

His actual investment was 40 per cent of the $10,255.50, he offering to put in two-thirds of all that has been contributed. Everybody who bid paid his money and was entitled to a pair of socks, but inasmuch as there was only one pair they were presented by Stranahan to the association.

George Woelfel, Jr., secretary to Commissioner Webster, sure did excell as an auctioneer.

The big topic, of course, was the automotive equipment exhibit to be held in Chicago, Oct. 28 to and including Nov. 2, at the same time that the convention is held. The association considered this exhibit one of the biggest forward steps it has taken since the organization was formed. The exhibit will be strictly a trade affair and will at no time be open to the public. No admission will be charged. Admission will be by card.

It is proposed to hold the exhibit at the same location as the convention and an effort will be made to have luncheon facilities at the same place so that the trade can spend the entire day at the meetings.

The Medina Temple in Chicago is most prominently mentioned as the place of the exhibit, although it has not definitely been selected.

While the details have yet to be worked out, the tentative plan is that the business sessions of the association shall be held in the morning, at which time the exhibit will be open to dealers. At noon the business sessions will end and during the afternoon the exhibit will be open only to jobbers and manufacturers. This will enable those interested to transact business with the least possible delay and confusion, in that all those in the building in the afternoon will

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Commissioner William M. Webster and a bunch of mountain laurel

be known to be manufacturers or jobbers and their direct representatives. Nothing has been decided as to whether the exhibit will be kept open during the evening. This probably will be determined later according to the desires of the members.

There was considerable discussion as to whether the exhibit should be run along open or closed lines. There were some who wished to confine it to the members of the association, and an interesting convention fight seemed in prospect on this and certain other points, but with little difficulty harmony was effected and the majority and minority united on the open show basis. This means that manufacturers other than those belonging to the association can enter the exhibit. However, members of the organization will be given first choice, and because the membership is large, it is unlikely that there will be much space available for outsiders. Were any other plan followed, it was believed, there might be many members who would be unable to enter an exhibit which they themselves were helping promote. A great many applications for space have already been received, and indications are that the space allotment will be oversubscribed by a large percentage long before the exhibit opens.

Boost Trade Generally

The great advantage of the exhibit is, of course, that it will set the automotive equipment business ahead by several months. As things stand now jobbers are unable to issue their catalogs until after they have seen the goods that are displayed at the various winter shows. This causes the catalogs to be issued about April. Dealers will not stock up until the catalogs are in their hands, which means that spring and summer stocks which should be secured in the winter are not ordered until late in the spring. with the result that the manufacturers and jobbers have to carry a big peak load of production and stock during the winter months. If the idea of the exhibit proves successful the jobbers will be able to meet the manufacturers at the end of October and will be able to issue their catalogs about Jan. 1, which is the time they should appear.

There was also discussion as to whether the exhibit should be operated for profit or not for profit. The majority were of the opinion that it should not be a profit making enterprise and only such revenue being levied via the sale of space, etc., as will meet the expenses of the project, and leave a safe margin for the organization's exhibit fund.

Committee to Manage

The management of the exhibit has been turned over to a committee of three



Those $10,000 socks that were knit by Mrs. Ludwig Wolff and which brought a fine fat sum for the Red Cross at auction. That lady is Mrs. Wolff

manufacturers and two jobbers, who will supervise the affair and employ a manager. This committee consists of L. P. Halladay, L. P. Halladay & Co., Streator, Ill.; William K. Norris, McQuay-Norris Mfg. Co., St. Louis; George L. Brunner, Brunner Mfg. Co., Utica, N. Y.; R. R. Engelhart, Sieg Co., Davenport, Iowa, and Sidney F. Beach, Motor Car Supply Co., Chicago, president of the association. The first three are the manufacturing members of the committee and the last two the jobbers. The manager has not been chosen. The committee plans to hold its first meeting in Chicago June 26.

It was decided at the convention on Thursday morning that all the spaces that have been allotted in consequence of letters previously written Commissioner Webster's office will be disregarded and that new application blanks will be sent out. Applications will be returned in due course and then the spaces will be allotted in the matter of preference as per drawing by numbers out of the hat. This allotment of space will be taken care of by a drawing by the show committee.

May Change Name

That the name of the exhibit is "Automotive Equipment Trade Exihibit" is somewhat of a forerunner of a change in the name of the association itself. The members consider that the word "accessories" is a belittling term and indicates that the goods the jobbers sell are something that are not essential to the operation of cars and other automotive vehicles, whereas a majority of the merchandise jobbed in the trade consists of supplies and equipment that are needed in keeping cars in continued operation. For this reason the word "accessories" will likely be dropped and the term "equipment" substituted. The new name, as proposed, is "International Automotive Equipment Association." It will be accepted or rejected at the October meeting.

The word "automotive" is chosen because the jobbers are supplying the trade which deals with many other things than automobiles, tractors, trucks, including farm lighting outfits, gas engines and other automotive apparatus.

Also the association from its beginning has been more than a "national" organization. It has a strong and active membership in Canada and at its present session took in a member from England



President S. F. Beach and the jobbers' mascot

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H. H. Brenner, I. J. Cooper Rubber Co., Cincinnati



Walter I. Tuttle, Frank Mossberg Co., Attleboro



W. I. Ralph, Motor World; Gregory Flynn, E. A. Cassidy Co., New York



Frank Chase, Frank Mossberg Co., Attleboro, Mass.



J. S. Spargo, Howe Mfg. Co., Chicago

who has branches throughout the British Empire. Because of this international character and the other phases of nomenclature mentioned, it is likely that the October convention will amend the constitution to change the name to International Automotive Equipment Association.

Change Annual Meeting

The experience of the association has been that it is difficult to hold a successful convention in the same city as either of the annual automobile shows, during the continuance of these shows, because members are constantly called away from the convention by business and proceedings are somewhat disrupted.

It was, therefore, proposed and carried that the annual meeting be held in the fall, and that the terms of officers be made to begin at that time. Under that arrangement the officers who are now serving and who took office last winter will serve less than a full year during 1918.

One of the members suggested that it is unfair for a jobber to place a blanket order with a manufacturer and then refuse specifications or shipping dates. This compels the manufacturer to purchase raw materials and make up all or part of the goods and hold them at his own expense while the jobber makes up his mind whether he is going to take them.

The association is to issue a monthly bulletin, the object of which is to give members information on the good work that is being done by the various local associations of jobbers in order that all the locals may operate to best advantage.

Ways and Means Trip

One of the things which has served to benefit the association is the Western trip made between Feb. 16 and March 16 by the committee on Ways and Means to Dallas, San Antonio, El Paso, Los Angeles, San Francisco, Portland, Tacoma, Seattle and Spokane.

Complaint was made that jobbers sometimes refuse to pay invoices because the goods have not been received, and it was pointed out that delays in shipment are not at all the fault of the shipper and that invoices should be paid according to the agreed terms regardless of any shipping troubles that might arise.

Free Samples

An abuse which hadn't been stepped on very hard until the present convention is that of manufacturers giving free samples and prize packages. These are given sometimes to the jobber and sometimes to the jobbers' customers, and virtually amount to a cutting of price and an unfair inducement to make purchases. The convention went on record as being opposed to this practice.



George Fritz investigating himself



A. J. Picard bawling himself out

Mention also was made of the efforts of certain groups of dealers, especially Ford dealers, to combine their purchases and get jobbing prices from manufacturers. This was classed as being "not a stable and reliable method," and manufacturers were reminded that the trade is not benefitted if they "let their eyes be dazzled by the bright light of quantity."

The importance of "selling" the association to dealers and to jobbers' salesmen was emphasized, and importance was placed upon the necessity for making jobbers' salesmen into an enthusiastic missionary band for the organization.

That Bill Collector

There were both interesting and serious sides to the assertion that some of the jobbers have resented the use of the association's collection bills upon themselves when they failed to meet their obligations to manufacturers for various reasons. One jobber is said to have paid his bill and to have cancelled all his orders because the association's collection machinery was used upon him. The majority were of the opinion that the jobbers who so acted are unfair and that any member should be permitted to make any legitimate use he sees fit of the collection department.

The members were very much interested in a universal closing plan that is being operated on the coast. The jobbers there have agreed to shut up their places entirely between 12 and 1 at noon, which permits everyone in the building to be absent at noontime and all to return together, causing what the jobbers state is a minimum disruption of the business day. They have also agreed on simultaneous vacations for their traveling men from Aug. 1 to 15, during which period dealers who desire goods will order direct, and the vacation period will be over with a minimum of confusion and dissatisfaction as to dates.

Bulletins by Locals

One of the local associations recently in endeavoring to put over a point of which it was in favor sent bulletins to the entire membership of the association. It was suggested that this should not be done without the approval of the commissioner's office and that whenever possible the machinery of the commissioner's office be used in sending out such information.

(*Continued on page* 35)

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Franklin Mayo, Mayo-Skinner Mfg. Co., Chicago



E. N. Claughton, Johnston Tire & Auto Co., Montgomery, Ala.



Jack Cooper, Endurance Tire & Rubber Co., New Brunswick, N. J.



H. F. Prescott, Detroit Battery Co., Detroit



A. B. Coffman, American Wood Rim Co., Onaway, Mich.



Howard Ford, Advance Auto Accessories Corp., Chicago



H. M. Dine, Dine-DeWees Co. Canton, Ohio



James T. Moultrup, Champion Spark Plug Co., Toledo



The chief photographer and assistant photographer



B. Darrach, Jr., Laminated Shim Co., New York



Fred G. Bremer, U. S. Auto Bumper Co., Chicago



W. E. Hooker, Sharp Spark Plug Co., Cleveland



C. A. Wigmore, Philadelphia, and E. R. Waterman, Jersey City



C. B. Johnson, Advance Auto Accessories Corp., Chicago



Willard Walker, Walker Mfg. Co., Racine, Wis.; Mrs. J. W. Fulton, Chicago



M. A. Dewey, Jr., Gemco Mfg. Co., Milwaukee



Mrs. Horace H. Eckhouse, New York



Harry Smith, Pennsylvania Rubber & Supply Co., Cleveland



J. A. Benan, Jefferson Electric Mfg. Co., Chicago



H. C. Farran, Colorado Tire & Leather Co., Denver



Mr. and Mrs. Charles A. Wigmore, Manufacturers' Supplies Co. Philadelphia

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H. W. Lester, Post & Lester Co., Hartford, Conn.



"St" Falkenberg, Sparks-Withington Co., Jackson, Mich. J. Frank Keegan, Albertson & Co. Sioux City, Ia.



Edward A. Cassidy, E. A. Cassidy Co., New York



C. A. Clark, Repass Auto Co., Waterloo, Ia.



A. J. Hopkins, Canadian Fairbanks-Morse Co., Montreal, Can.



Charles E. Stahl, Connecticut Telephone & Electric Co., Meriden, Conn., and W. I. Ralph, MOTOR WORLD



George L. Clook, Champion Spark Plug Co. Syracuse



C. E. Robinson, McCoy Auto Lock Co., Hamilton, Ont.



J. S. Spargo, Howe Mfg. Co. Chicago



E. S. Stebbins, Double Fabric Tire Co., Auburn, Ind.



J. W. Watson, American Bronze Corp., Berwyn, Pa.



John Stockfish, Veedol Oils



W. J. Dean, Nicols, Dean & Gregg, St. Paul; Mrs. R. R. Englehart, Davenport



One of the thoughtful delegates



H. E. Merrithew, Indianapolis; H. B. Ramey, American Eveready, Long Island City



N. B. Burwell, J. B. Burwell Supply Co., Oklahoma City



W. B. Dean, Tisch Auto Supply Co., Grand Rapids



F. B. Caswell, Champion Spark Plug Co., Toledo



U. S. Fry, Cahall Motor Supply Co., Philadelphia



E. G. Edwards, Kellogg Mfg. Co., Rochester, N. Y.



Joseph Weidenhoff, L. Weidenhoff, Chicago

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J. W. Lawhead, Au-To Compressor Co., Wilmington, O.



R. J. Hundhausen, Holthouse Saddlery & Auto Supply Co.



Samuel Green, Detroit Battery Co., Detroit



A. W. Freund, Federal Miniature Lamp, and N. H. Oliver, Chicago



S. J. Colling, Marvel Accessories Co., Cleveland



S. W. Hanna, Columbus Varnish Co., Columbus



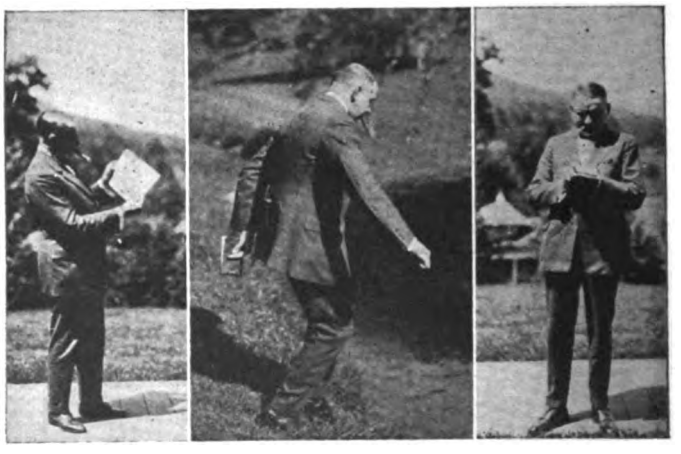
E. H. Meyer, Van Cleef Bros., Chicago

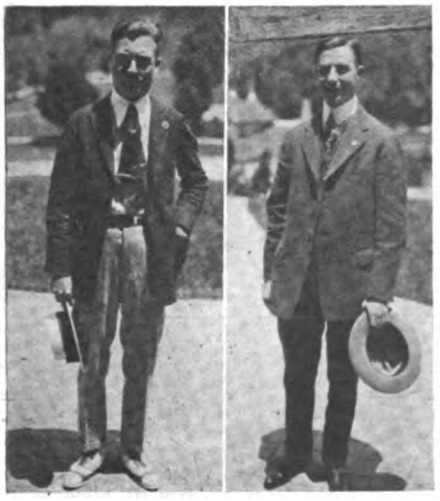
LEFT TO RIGHT

Mrs. C. Gerhold, Akron.
Miss Grace Webster, Chicago
Mrs. Frank Chase, Attleboro, Mass.
Mrs. N. H. Oliver, Chicago.



Who ever thought a fat guy could be so busy? This is little Freddie Kohl, perennial assistant to the MOTOR WORLD photographer. On your left Freddie is looking at the $100 of Thrift Stamps he bought. Honest he did. In the center Freddie is about to jump a brook to corral some unphotographed ladies. On your right he is joyously entering their names in the little book. Thanks, Freddie!





C. L. Pettingill, G. Norman Baughman Co., Tampa, Fla., and E. C. Reynolds, Auto Supply Co., Tacoma, Wash.



This picture was taken by the man in the picture. It is not to show the man in the picture, but to show a repairshop short-cut for hanging up white pants at Hot Springs

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Sometimes They Worked But They Don't Look It

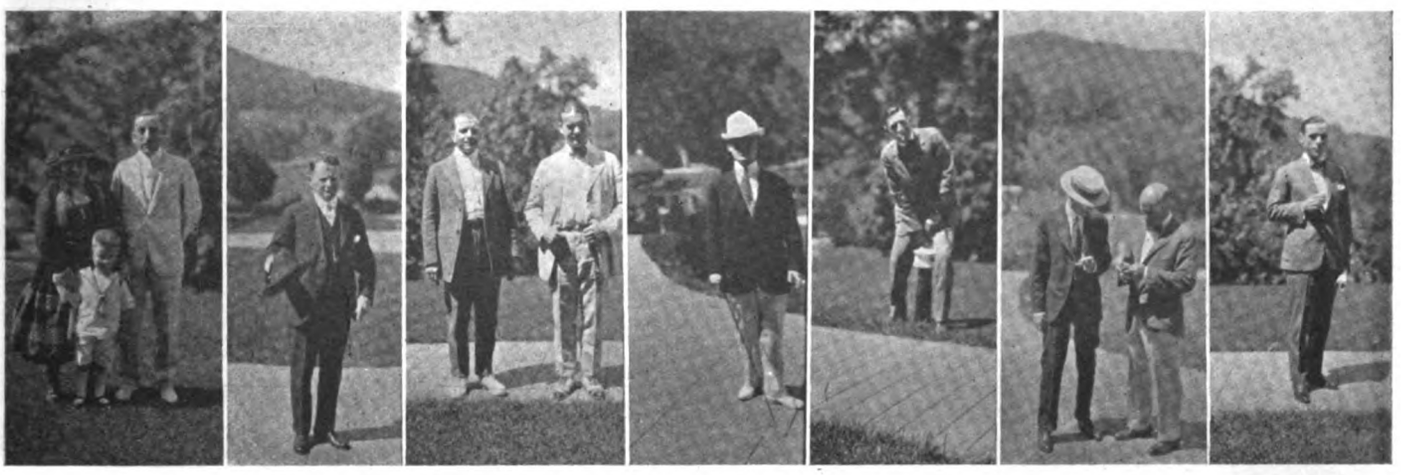


Charles B. Shanks, Manager MOTOR WORLD, *New York*

B. M. Asch, Asch & Co., New York

E. D. Emmons, Hayes Mfg. Co., Detroit

By your golf bag shall ye be known



Mr. and Mrs. E. Edelman and "Bobby," Chicago

L. H. Williams, Williams Hardware Co., Minneapolis

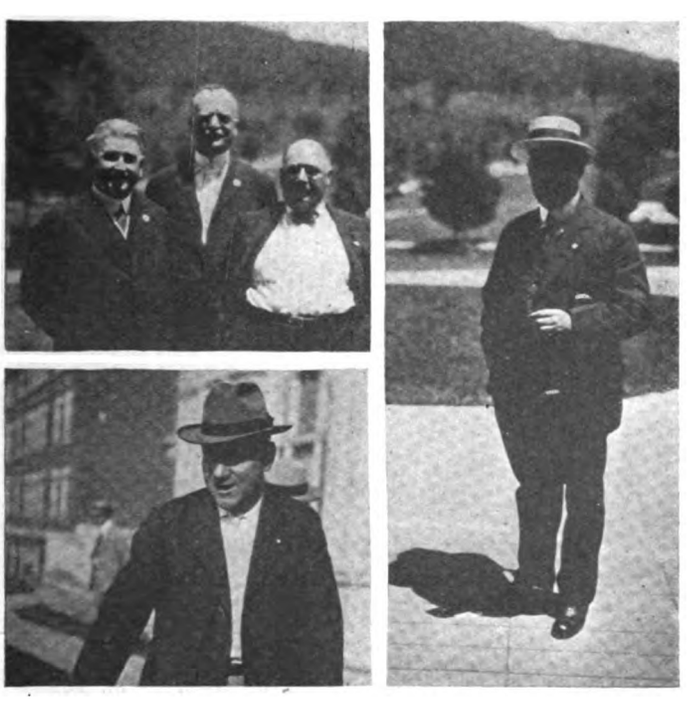
C. A. Bissonette, W. W. Earley, Corcoran-Victor Co., Cincinnati

Horace H. Eckhouse, B-E Motor Engineering Co., New York

George Woelfel Secretary to Commissioner Webster

Clarke G. Powell, Powell Supply Co., Omaha; T. M. Brooks

Joseph Liston, Hippe-States Co., Des Moines, Ia.



THE TRIO—C. C. Hillis, San Francisco; C. R. Churchill, New Orleans; W. W. Low, Chicago, all of Electric Appliance Co. Lower left—S. A. Fulton, Fulton Co., Milwaukee. Right—A. E. Gross, Philip Gross Hardware Co., Milwaukee



Here the are, gentlemen! And both gentlemen. Behold on your left F. B. Caswell sales manager of the Champion Spark Plug Co., and on your right Freddie Campbell, of—oh, yes, membership committee

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For Optimism You Can't Beat This Bunch



E. S. Gellatly, Indian Refining Co., New York



Richard Crooker, Allen Auto Specialty Co., New York



Neil O'Connor, Griswold-Sohl Co., Columbus, O.



"Mac" MacGauley, R. G. Westholt, Beck & Corbitt Iron Co., St. Louis



C. B. Clark, Champion Spark Plug Co., Toledo



Robert A. Stranahan, Champion Spark Plug Co., Toledo



Walter Schwab, Badger Mfg. Co., Milwaukee



H. L. Corey, Champion Spark Plug Co., Toledo



C. L. Corwin, Champion Spark Plug Co., New York



W. F. Minnich, Champion Spark Plug Co., Atlanta, Ga.



W. F. Parker, Packard Electric Co., Warren, O.



Edward Pegau, Western Auto Supply Co., Omaha



W. A. Allen, Allen Auto Specialty Co., New York



B. M. Asch, Asch & Co., New York, and J. B. McCullough, J. B. McCullough & Son, Philadelphia



J. W. Fulton, Fulton Sales Co., Chicago; Miss Dorothy Webster, Chicago



John Shuford, Bittel - Leftwich Co., St. Louis



J. Malcolm Calvin, Bonniwell-Calvin Iron Co., Kansas City; Mrs. Calvin; E. J. Hess, The Equipment Co., Kansas City



Earl Allmon, Missouri Auto Specialty Co., St. Louis

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E. C. Deardorff, Toledo Rubber Co., Toledo



George Briggs, Wheeler-Schebler Co., Indianapolis



R. V. Smith, Burwell-Smith Supply Co., Oklahoma City



J. E. Crawford, Ratcliff-Sanders Co., Tulsa, Okla.



Walter P. Coghlan, The Klaxon Co., Newark, N. J.



Willard Walker, Walker Mfg. Co., Racine



L. H. Craig, Gemco Mfg. Co., Milwaukee



Commissioner and Mrs. William M. Webster



R. R. Englehart, Sieg Co., Davenport; Mrs. Englehart



Mr. and Mrs. G. M. MacWilliam, Hyslop Bros., Ltd., Toronto



T. M. Brooks, Auto Supply Co., Chicago; Mrs. Brooks



Mrs. R. R. Englehart, Davenport, and Mrs. S. F. Beach, Chicago



John Proctor, Minneapolis Iron Store Co., Minneapolis; Mrs. Proctor



F. E. Sparks, American Chain Corp. Bridgeport, Conn.



Mrs. L. B. and Miss Naomi Everhart, Challoner Co., Oshkosh, Wis.



Thomas Ford Wilson, Apco Mfg. Co., Providence



F. A. Knight. J. & B. Co., Pittsfield, Mass.



L. J. Stearn, "X" Laboratories, Boston, and Mrs. Stearn



A. J. Ludy, Clucker-Hixson Co., New York

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5,000 Members In 90 Days

National Automobile Dealers Association Begins Big Campaign

IT WANTS YOU

THE National Automobile Dealers Association has started a campaign to get 5,000 members in 90 days.

It held a meeting of delegates from nearly all the principal cities in the United States in Chicago last Friday and Saturday.

It has prepared plans which will give the association a representative in every county in the United States.

Every car dealer in the United States will be asked to join.

The work of handling this immense campaign has been placed in the hands of E. E. Peake, secretary-treasurer of the Kansas City Motor Car Dealers Association and president of the National Association of Automobile Show Managers.

Peake will spend only a small part of his time at his own office at 909 Gloyd Building, Kansas City, and will make headquarters at the office of President F. W. A. Vesper, 3550 Lindell Boulevard, St. Louis.

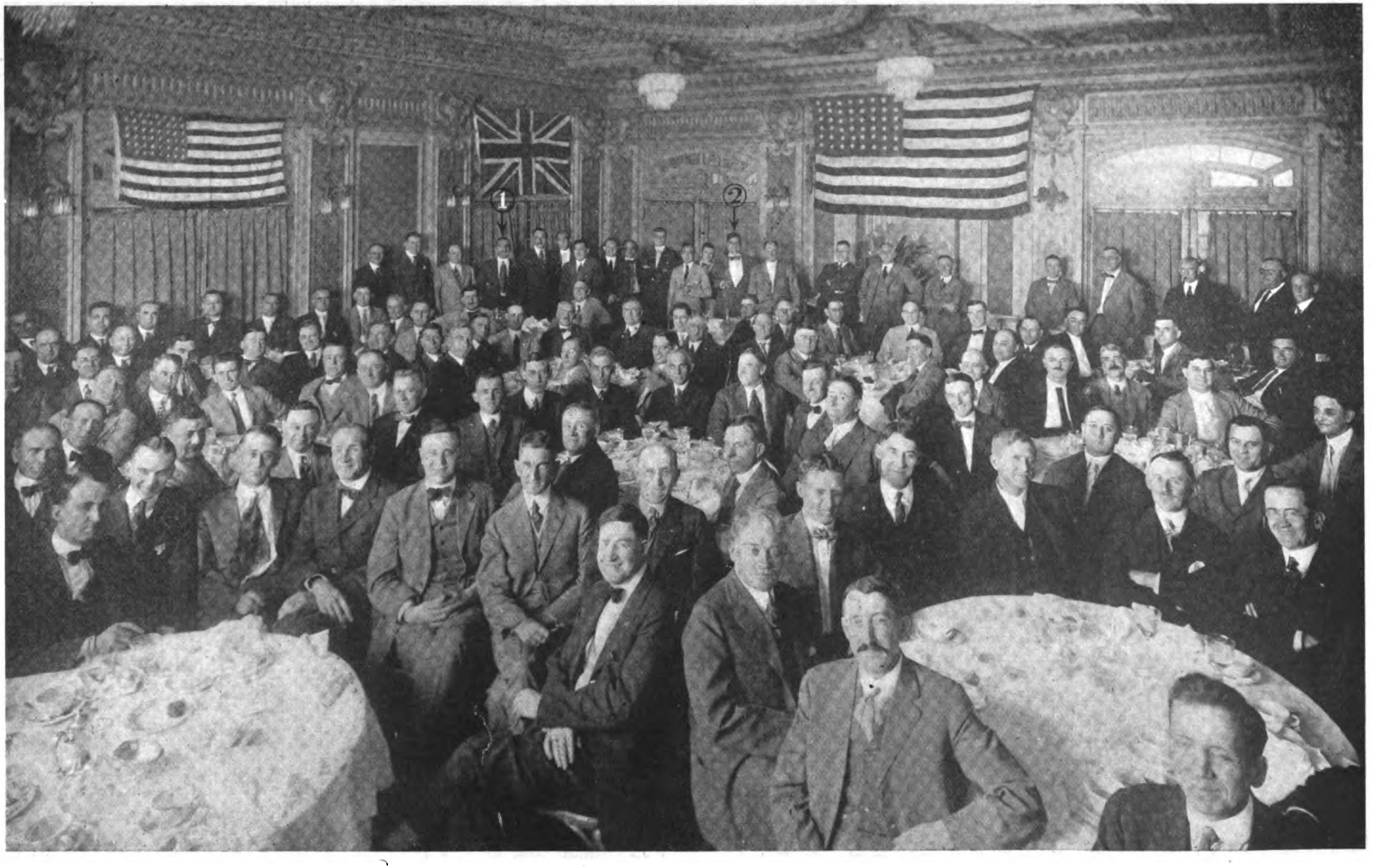
During most of the next ninety days both President Vesper and Executive Secretary Peake, with other association officers and supporters, will travel over the whole United States delivering addresses to dealers in different territorial centers.

All that is required for membership in the organization is that a man be a dealer in cars and pay $15, which covers an initiation fee and dues for the first year.

There is dire need for strengthening of the organization at this time, conditions that no one can foresee are likely to arise. (*Continued on page 16*)

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National Automobile Dealers Association in War Convention



Following the adoption of the N. A. D. A. War Service Committee's conservation plans, the association launched into an intensive membership campaign which it is planned will bring 5000 or more members in 90 days or less. No. 1 is President F. W. A. Vesper, St. Louis, Buick distributer and a veteran of the trade. No. 2 is the new executive secretary, E. E. Peake of Kansas City, who has been placed in charge of the membership campaign. This is the most representative gathering of dealers ever held. The men are all leaders in their localities, many are local association officers and all have pledged themselves to get behind the big "5000 in 90 days" movement

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There is a gross misunderstanding on the part of the public and officialdom in general as to the character of this business, and millions of dollars have already been lost to dealers because so many people have considered the car a non-essential, and have taken a swat at it on every possible occasion.

Considerable has already been done by President Vesper and the officers of the association in remedying this condition. They have spent a great deal of their own time and money in fighting the cause of the dealers.

They have reached the point where they feel the need of more backing—of greater numerical strength. And they should get it.

Inasmuch as this association is fighting for the interests of every dealer, every dealer should belong to it. The dues are nominal; $15 is a mighty small investment for the protection this organization can give. The one great need the association feels is membership.

If it is going to be a strong national organization it must have 5,000 members within the next ninety days.

It has got to get them, and get them quick! It needs you.

This means that every dealer who reads MOTOR WORLD should at once send his check to this association at the office of President Vesper in St. Louis—3550 Lindell Boulevard.

The Board of Directors of every association in every city should meet at once and select from the association their five fastest working men. These men should be constituted a Committee on Organization for the territory in which those dealers distribute.

The directors should then call a meeting of the whole association and arrange to sell them on the idea of this extended organization.

At this meeting the names of this committee should be announced.

This committee should then name a committee in every county in the territory, these committees to be made up of the livest, fastest working men. Men must be picked who will get results, regardless of what car they handle or how long they have been in business.

These county committees should then get to work and sell the organization to all the dealers in the county. This can be done through local meetings and personal solicitation. The county chairmen should turn their memberships over to the central committee in the distributing center, which should wire Executive Secretary Peake of the number secured and immediately forward the application blanks and checks.

In order to promote this work many meetings of dealers will be necessary. Cleveland is going to hold one to which all the dealers in Northern Ohio will be invited. Harrisburg, Pa., has one on the schedule. There is not a city represented at the Chicago meeting which does not plan such an affair. These meetings will be addressed by President Vesper or Executive Secretary Peake, or some other speaker who is familiar with the work that is being done.

The officers of associations in all cities should at once get in touch with Peake and arrange dates for meetings. An effort should be made if possible to arrange a circuit of meetings in different sections so that one man may cover as many as possible, going from city to city on consecutive nights.

No local association has the strength of numbers to make an effective fight against the conditions that are arising today. The only solution is this national organization. **Each local is wasting part of its own strength if it tries to fight alone. It should combine its strength with others and help create a machinery that can do real work.**

Inasmuch as every dealer is already participating in the benefits of this organization he should come into it and pay for work that already has been done and help support the big work that has got to be done during the next few months. The association will help every dealer even if he doesn't join, and it is only fair that he should join and contribute support.

This membership is an insurance policy protecting the dealer's business and costs less than three cents a day.

In addition to the critical situations that will be handled as they arise the organization also is going to take up uniform license laws, uniform headlight laws, business efficiency, protection against unjust taxation, co-operation between dealers and manufacturers and all other phases of business.

In addition to notifying President Vesper and Executive Secretary Peake of activities in this matter, MOTOR WORLD requests that information be sent to it wherever activity begins.

For twenty years this trade has wanted a strong association. **Today the opportunity for it is here.** The only essential is that dealers everywhere send to the association headquarters at 3550 Lindell Boulevard an application, plus a check for $15. **Don't wait for an application blank. Write out a check and send the letter.**

If there is anything MOTOR WORLD can do to assist anywhere to put the association over in any section you have only to tell us what it is and we shall do our best to assist because we believe this organization movement today is THE BIGGEST PIECE OF BUSINESS BEFORE THE AUTOMOTIVE TRADE OF AMERICA.

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Drive-away Bureau

ASK FOR INFORMATION—AND—GIVE US INFORMATION

THIS department will be continued indefinitely. Its aim is to provide a clearing house for information as to routes, road conditions, hotel rates, garage rates, unfair conditions, new routes, etc. Motor World will make an effort to get any information you desire. In return, all dealers are requested to forward promptly any information they have regarding drive-aways. Send your information so it will reach New York not later than Monday of each week.

The "Inconsequential Objector"

How Two Drive-away Enthusiasts Handled Him

By K. H. Lansing

"I DON'T believe I want the car I ordered from you to come from Michigan to Philadelphia under its own power," said Mr. P. Essimist, dolefully, to Jack Smiler, salesman on Automobile Row, Quaker City.

Mr. P. Essimist pulled a long face and continued:

"I know just how it will be—mudguards bent, varnish off in gouges, tires punctured and patched up, maybe a bad jam or two on the body, a hole poked through the canopy—"

"In that case," said Smiler briskly, "we'd wig-wag for a gyp and wouldn't try to sell you the car. You said you wanted your machine as quickly as possible?"

"Yes," replied P. Essimist, "but—"

"Do you realize we can't even promise you delivery by freight or express in a matter of weeks?"

"Well," answered P. Essimist, "at that, I'd rather wait than have a second-hand car arrive, and in bad shape in the bargain, after I'd ordered a new one."

How Would You Like to Have It?

"How'd you like to get your car in bang-up, not banged-up shape, inside of 6 days?" Smiler stuck out his chin aggressively and walked two steps nearer P. Essimist.

"I suppose that would be good," said P. Essimist, "but what's the use of stating hypothetical cases? Let's get down to brass tacks and see whether freight or express would be the better means of getting that car here within a reasonable period."

"Just wait a minute till I call Skidmore, our service manager," said Smiler.

Then ensued the following rapid-fire dialogue between Smiler and Skidmore for the benefit of P. Essimist, who scowled and twiddled with his watch chain meanwhile:

"Skid, when does the next drive-away start from our factory in Michigan?"

"To-morrow at 8 a. m."

"If I wire this afternoon, can they add a car to the tour?"

"They can if they don't all have a stroke of paralysis."

"Will there be any careless drivers on the trip?"

"Not unless you call our expert chauffeurs careless."

"This gentleman has ordered a car from us and wants it as soon as possible. He prefers to have it come by freight, for fear the car will be hurt en route. He says depreciation is too great when a drive-away is employed and that his car will be virtually a second-hand machine when it arrives."

Don't Intend to Go Back to Express Shipments

And Smiler slowly half-closed his left eye—just a flicker, at Skidmore. This meant, "spout, old boy; now's your cue."

"If you want your car here within a reasonable time," began Skidmore, addressing P. Essimist, "and if you want it to arrive in first-class condition, you had better allow us to wire our drive-away leader to send your car along to-morrow. It will be here in 5 days at the outside."

"But I don't want a damaged car," protested P. Essimist. "I won't take one that's been all used up on the road. I know; it'll rattle and squeak and every other old thing."

"Pardon me," interjected Skidmore. "We now have many customers who would not permit us to ship a car by freight or express. They have learned their lesson. We, too, had your idea that there might be at least a little unnecessary depreciation, but we have been won to the drive-away, and WHAT IS MORE, WE INTEND NEVER TO GO BACK TO FREIGHT AND EXPRESS SHIPMENTS IF WE CAN HELP IT.

"I'll tell you why. First I'll state that we have been using the overland tour from factory to consumer since last February and DURING THAT TIME WE HAVE NOT HAD A SINGLE COME-BACK, OR COMPLAINT BECAUSE OF DAMAGE, OR NOISE, OR SQUEAK, OR RATTLING, or anything else. When we used freight shipments, I am free enough to admit that we did. But all that has been eliminated because of the very methods we use in drive-aways that never were used previously.

"Every car is gone over most carefully before we start. Everything is tightened up and our expert drivers only run a stated number of miles each day. The stops are frequent and at each stop each car is examined.

"A new car on such a drive-away is improved—it is limbered up to its maximum capabilities, stiff motors made to run sweetly and the entire machinery made to co-ordinate so that smoothness takes the place of newness. Did you ever know a shipped car to arrive in that condition? Without a drive-away, what factory is going to have each car ordered jockeyed by an expert driver before it is sent on?

Car Gone Over Thoroughly

"On arrival at point of destination the car is oiled and gone over thoroughly a second time, or whatever time it may be that it has seemed to need attention. Isn't that an advantage over shipping?

"Remember, that in shipping many cars have to be taken apart to be loaded. The doors of the cars often have to be removed and sometimes, even after the train has arrived, it is days before the customer can have his car, for in reassembling and unloading much time is consumed.

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"This re-assembling often is done hurriedly, especially in the case of large consignments, in order to get through and deliver. Then parts are found to be loose, or squeaky and the customer spends much time and patience running back and forth to a garage or service station to have the car put in shape and usually an indicator would show that he travels at least 200 miles before the car will run right.

"After a drive-away, the man who brought it in can vouch for it as an individual performer. Often cars like this, known as especially proved 'sweet' runners are put away, when not ordered for any particular customer, for the manager, or for some one known as 'cranky.'

(Here just the vestige of a wink to Smiler, unobserved by P. Essimist, whose eyes had opened wider.)

Bring In Car in Perfect State

Skidmore hurried on, seeing he was scoring.

"And as for damaging the car. In addition to all possible care from expert chauffeurs, it is a fact that coal dust often gets so ground into a car that it is necessary to revarnish after a freight shipment. We never have had to revarnish after a drive-away, although some make a practice of it, not because of any damage, but to please customers. We bring our cars in in such condition that nothing of the kind is necessary.

"On the railroad trip cars, despite careful packing, do get banged around more or less; besides, one of the bugbears of the shipment lately has been the great number of parts stolen from cars in transit. Ask any factory that sticks to freight shipments.

"As to mud and stain: If it rains and there are pools and flooded parts of the country, our experts in drive-aways have such intimate knowledge of routes that usually some alternate road is taken in wet weather, where it will not be necessary to do any 'swimming.' Coal dust will seep through ripped canvas covers en route via freight. Did you ever see a machine that needed attention after this sort of thing? We have been converted; we want no more freight shipments—"

Drive-away Cheaper Than Freight

P. Essimist actually was interrupting.

"But how about the cost of a driven-in machine—what will be the excess in charges over the freight shipment?"

"We can quote you a lower figure on your machine, including everything, with a drive-away, than with a freight shipment," replied Skidmore, knowing now that his talk had shot home.

"You see lumber is pretty high now, and to block up a car properly—or at least as well as can be done so as to insure a minimum of scratches—will cost about $60 per car, to be distributed among the various customers as charges. You will avoid that, too, by the drive-away plan. Now let us wire our factory—"

"Oh, go ahead and wire 'em. I suppose the car won't be broken up any worse by an overland trip than by a lot of baggage-smashers," said P. Essimist with a grunt.

Then he turned on his heel and if he had looked behind he would have seen Smiler and Skidmore shaking hands.

Who Needs Good Drive-away Driver?

Editor Drive-Away Bureau—In looking over my last copy of Motor World I see quite an article in reference to drive-aways. I would like to get in touch with some one who would like to get a good driver for such a purpose.

As I have had seven or eight years experience driving many makes of cars and being over draft age and strictly honest and temperate, I feel competent to apply for such a position.—W. G. Coles, 110 Ashburton Ave., Yonkers.

P.S.—At present am employed as driver on White ambulance but expect to be free on July 1 if my resignation is accepted.

Will Drive for Expenses

Editor Drive-Away Bureau—I would be pleased to communicate with some Western dealer who is going to drive through from Flint or Detroit about June 15-July 15.

I intend to go to Los Angeles and would gladly drive a car through for my expenses. I can drive any car and have driven Buicks through for the Leyman Motor Co. of this city.—Proehl H. Joklon, 1648 Beechwood Ave., Louisville, Ky.

Discipline Essential in Drive-aways

PHILADELPHIA, June 15—"If automobile companies take the ground that they are always in the right in the matter of speed, number abreast and usage of the highways over which they pass in drive-aways," said an official of the Lincoln Highway Association, "they will work an injury to themselves and block their own progress. There is no greater friend of the motor car companies than I; their movements help keep the roads up properly, and pressure from them aids in bringing about reforms that otherwise might come very slowly through the regular channels. But there are certain offenders, occasionally, among motor car companies, that should be jacked up if for no other reason than that they bring discredit upon the fair companies who never abuse their highway privileges.

"Undoubtedly, overzealous road officials cause unnecessary trouble to overland tours in some instances; but undoubtedly, too, improperly conducted drive-aways from factory to distributing point do considerable damage, and their leaders ought to be locked up. Very likely the heads of the business would be glad to have them locked up, if they knew what was happening.

"Complaints have been laid from time to time that some towns in Pennsylvania make traps out of themselves to catch cars in transit to fatten borough treasuries through fines levied for trifling offenses or trumped up ones.

"This may be true in certain instances. But it is also true that loud complaints from drive-aways that they have been persecuted have been found without foundation. It has come to my attention more than once that Chambersburg, Pa., had been 'persecuting drivers.' I find that while there has been some prosecution, there has been no persecution. The town's position in my eyes has been vindicated.

"Certain western concerns have sent drive-aways over the route that might be called champions of carelessness. I have had to crowd into the gutter myself, near there, to keep out of the way of four automobiles driven abreast on the road in an overland tour. Such drivers of 'in transit' cars have no road sense and certainly no common sense. I shall so report to the factory whenever I come across a flagrant case of that kind. Right-minded automobile manufacturers and drivers should be in line with us on this attitude, if simply for self-interest."

Kansas City Dealers Resorting to Drive-aways

KANSAS CITY, June 15—All Kansas City dealers are getting some cars by freight, the conditions being much easier than a few weeks ago. Some, however, are running so far behind in deliveries that they are resorting to drive-aways to eke out their supplies. Briscoe is driving down five this week, partly to help relieve the freight congestion, and partly because these dealers of the Kansas City territory like the trip overland. The route from Jackson to Fort Wayne and Indianapolis, thence directly west to Decatur and Springfield and Jacksonville, is recommended. The road is worked along the route mentioned until it is said to be like a boulevard.

M. H. Nelson, service manager of the Howard & Murphy Motor Co., Hupmobile distributer, conducted a party of Hupp dealers of this territory from the factory last week. They followed the Blue Book route most of the way and found it excellently reliable, the trip through Indiana being especially pleasant. The party stopped at Toledo the first night, having started too late to reach a city further along the route, which would have given a better day-by-day schedule throughout the journey.

The next night stop was Huntington, a little town, and a poor place to stop if a larger town is available.

The third night stop was Paris, Ill.—again the fault of the schedule, which should have provided for Danville.

The fourth night was spent at Springfield, at the Leland Hotel; the fifth night at the Merchants' Hotel, Moberly, Mo., reaching Kansas City the next evening.

While Nelson suggests reaching Logansport, Ind., for the second night and Danville for the third, there is no serious disparagement of the small town hotels. They were somewhat cramped and service was not up to big city standards.

At all places fine garage service was available, even Huntington having a two-story fireproof garage.

The most serious thing to look out for on this route is the crossing of the Illinois River, about an hour out of Jack-

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sonville. The river is crossed on a ferry, the barge holding three Hupps at a trip, operated by motor boat; service is satisfactory, with good landing at the then stage of the river. It is said that the river may be much higher, however, in which case the lowlands on the west bank may be flooded, interfering with the roadways, and possibly with the ferry landing on that side.

Following Blue Book routes through Indiana, the party struck the Ocean-to-Ocean highway 20 miles south of Danville, followed it into Hannibal—this highway being the best road through that territory, from all information the party received. At Hannibal the party drifted from the trail, picking up the Santa Fe Trail and finding various roads to choose from. The party took a few different routes across Missouri, but from reports of all it seems that the Blue Book route is as good as any.

Drive-away Routes to Quincy

QUINCY, ILL., June 15—The chief drive-away dealers in this city are the Overland Automobile Co, the Irwin Motors Co., Henry Geise, Bennett Garage & Machine Co., the Morris Adler Moller Co., Cutforth Bros., Spring Street Garage, T. C. Nichols Co., Beatty Garage, Oakland Motor Co., Vermont Street Garage and Massie & Sons. The Clough Reihm Co., Chevrolet agents, get their cars by steamboat from St. Louis, while the Johnson Plank Co. are getting their machines through by railroad.

Routes

Kokomo to Quincy—Kokomo, Danville, Ill., Springfield to Quincy. E. S. Bennett, of the Bennett Co., Haynes distributer, reports that the police officials at Galesburg, Ill., held them up on their first trip through that city for not showing license plates, but after making satisfactory explanation they were gracious enough to show them the best route through the city.

Flint to Quincy—Flint to South Bend, Ind., Joliet, Bloomington, Springfield, Ill., to Quincy. H. A. Geise, Buick distributer, reports above best route. Occasionally he gets a few cars from the St. Louis branch, which come through in empty coal cars from the north, that are returned to the southern Illinois coal mines to be loaded again and the automobile traffic men take advantage of the empties to load them up with cars and ship them through as a return load.

Indianapolis to Quincy—Pike's Peak trail from Indianapolis to Springfield, Ill., then Cannonball trail to Beardstown, Ill., and then the Yellow Band trail to Quincy.

Cleveland to Quincy—Cleveland to Fremont, Ohio, might stop at Valparaiso, Ind., where the drivers claimed the hotel raised prices on them. Joliet to Galesburg to Quincy.

Toledo to Quincy, Ill.—Toledo to Defiance, Ohio, to Logansport, Ind., Decatur and Springfield, Ill., to Quincy.

Racine and Kenosha, Wis., to Quincy—Both dealers went through Chicago, then Aurora, Princeton, Galesburg to Quincy, Ill.

Detroit to Quincy—Detroit to Toledo, Defiance, Ft. Wayne, Indianapolis, Springfield to Quincy.

Lansing to Quincy, Ill.—Lansing to St. Joseph, Mich., Michigan City, Joliet, Galesburg to Quincy, Ill. The additional cost per car, the dealers stated, ran from as low as $18 to as high as $65. No special hotels and in only two cases in forty drive-aways did the hotel people take advantage of the automobile men. As most of the drivers were instructed to park their cars with dealers of the same cars in the various cities no complaint was heard on this point. The only case reported where the police interfered was the Galesburg incident, mentioned before, and this was quickly straightened out. Most of the dealers favor drive-aways and several of them will continue to get their cars in this manner throughout the summer months, or until such time as the freight situation improves and they can get the cars through by railroad.

The majority of the dealers were unanimous in their statements that the roads were good as a whole, but whenever they got on Illinois roads and there had been much rain, the Illinois gumbo was the worst going on any of the routes.

Chicago Dealers Perfect Drive-away Organizations

CHICAGO, June 13—During the period when practically every passenger car which came into Chicago was a part of a drive-away certain of the motor car companies perfected traffic organizations for handing that department of their business. These organizations are still maintained, although their usefulness is greatly curtailed owing to the restrictions which have been put upon passenger car production and the consequent impossibility of getting cars in normal numbers. This does not imply that drive-aways of passenger cars from factories to Chicago have ceased entirely, nor even that they are of infrequent occurrence, for neither condition is the exact fact. Cars are still being driven, but in smaller numbers than was the case a few weeks ago, and the trips are not made with the same regularity. When the factory can make a delivery the Chicago branch is notified and a crew is sent after it. This necessitates the upkeep of the drive-away organizations.

The perfection of drive-away organizations varies, of course, but certain fundamentals are common to all drive-aways from the Chicago end. A feature common to all is the drive-away crew manager or captain. Invariably he is a man of experience and judgment and competent to handle men and to maintain discipline. He also must be reliable and trustworthy, since he is entrusted with considerable sums of money and must see to its economical and efficient disbursement. He must also be resourceful and able to meet emergencies. Upon his good judgment depends the degree of necessary departure, whenever occasion demands, from the rules laid down for the governance of drive-aways. In fact, he is the direct representative of the company, and upon him rests the responsibility of getting the drive-away through safely, in the shortest possible time and at the least cost.

Under the crew manager, and second only in authority to him, there commonly is an expert mechanician. His position usually is at the rear end of the drive-away. The crew manager, however, leads, so that he may be in instant readiness to meet all mechanical difficulties and accidents. Invariably the mechanician is selected from among the force employed in the Chicago service station. He must be thoroughly conversant with the mechanical construction of the cars and be competent to make road repairs quickly.

The drivers, who must be skillful and amenable to discipline, are, as far as possible, taken from the Chicago branches, from the service station and from the new car departments. Their responsibility is limited to obeying the rules and regulations laid down by the company, maintaining their places in the line and following implicitly the instructions of the crew captain. Sometimes in the rush of the drive-away season the Chicago branches have found it impossible to spare all the drivers needed. In such cases outside men are hired, but always there is a leaven of experienced company men with the drive-away to insure safety.

Detail regulations governing drive-aways differ with different companies. For instance, the Overland Motor Co. of Chicago invariably drives in fleets of twelve cars. The lead car is in charge of the crew manager, who determines the route and sets the speed. The mechanician drives the rear car. As nearly as possible, a uniform speed of under 22 m.p.h. is maintained. A distance of 100 ft. is prescribed between cars. The moderate speed and the regular spacing prevent accidents and allow the following car to escape the dust raised by the car ahead. It is customary for the Overland company to use only two or three regular drivers from among its own force with each drive-away, in addition to crew manager and mechanician, other drivers being hired on the outside.

Before the cars leave Toledo they are thoroughly inspected. The pistons are oiled and oil is put into the gasoline. At every stop it is the duty of the mechanician to inspect each car thoroughly. Before starting on the drive-away all cars are showered with cold water to harden the varnish and to wash off any particles of grease which may be adhering to any part. This also facilitates the operation of cleaning when the cars reach Chicago. All tops are put up and mohair tops are protected with muslin coverings from dust and dirt.

Few spares are carried. Aside from the tools of the mechanician, only a few extra tubes are carried. Garage service along the route is depended upon in case of serious trouble. This rarely happens, however. One damaged fender, for instance, was the only cost in drive-aways which brought 120 cars from the factory into Chicago.

The route from Toledo to Chicago follows the air line of the New York Central. Leaving Toledo, the route passes through Holland, Spencer, Swanton, Delta, Waseon, Pettisville, Archbold, Stryker, Bryan, Edgerton, Ohio; Butler, Ind.; Waterloo, Coronna, Kendallville, Brimfield, Wawaka, Ligonier, Millersburg, Goshen, Elkhart, Osceola, Mishawaka, South Bend, Lydick, New Carlisle, Laporte, Westville, Coburg, Valparaiso, Hobart, Gary and into Chicago via the Ridge Road and the Lincoln Highway.

Overland drive-aways commonly cover

(*Continued on page* 45)

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SCIENTIFIC CONSTRUCTION

GARAGE *SHOWROOMS* *REPAIRSHOPS*

We shall be glad to draw a plan for you or give you any other aid in your building, free of charge. But be sure to send full details, including a sketch of the plot, showing position of streets

Efficient Garage Arrangement

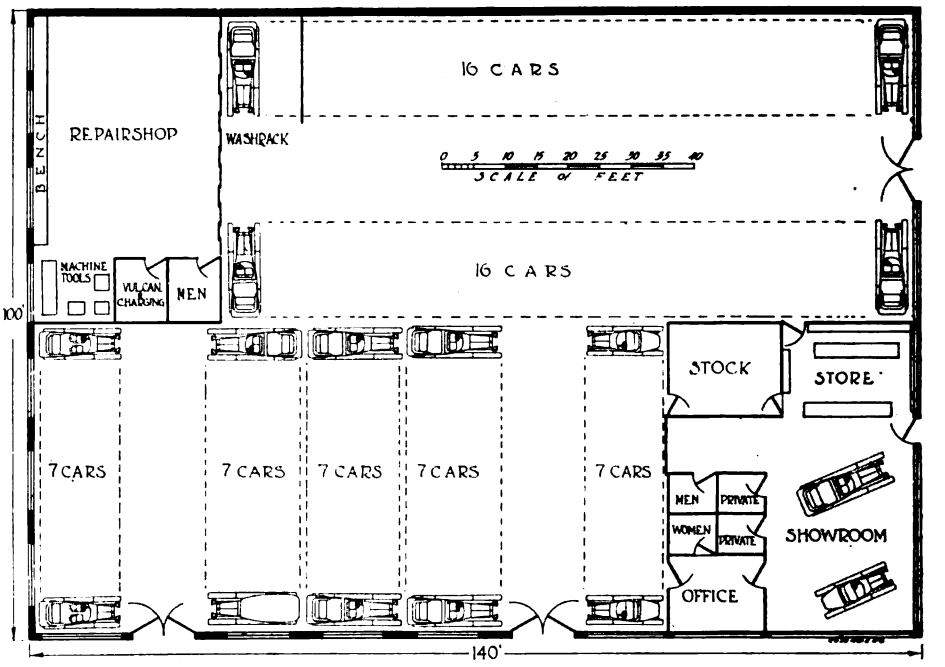
Editor Motor World: We are sending you plans for garage under separate cover. This building fronts to the north and is on the northeast corner of the block. The north street and the east street are both main streets. We expect to put our office and salesroom on the north. We handle Ford cars only.

We would appreciate an outline for the inside of the garage as to salesroom and workroom. We are contemplating putting our workshop right next to our office and stockroom. What do you think of this idea?—Rosenberg Hardware Co., Lexington, Neb.

There are two serious objections to your plan. One is the fact that you have not provided for an accessory display window, and the other is that the general arrangement of your building is such that you cannot utilize your garage space to best advantage. The plan we have drawn has space for 68 cars without parking any in the aisles, and this is many more than can be stored in your layout.

The showroom unit we have designed takes up slightly more space than yours, but this seems necessary. Anyway there should be no objection on this score because even with this space subtracted more cars can be stored.

We believe that a long, narrow showroom is not as attractive as a somewhat shorter and deeper one. The latter offers a better opportunity for attractively arranging the cars and permits more flexibility in placing them. At the same time the reduction in showroom window space is not sufficient to materially affect the value of the display as seen from the street.



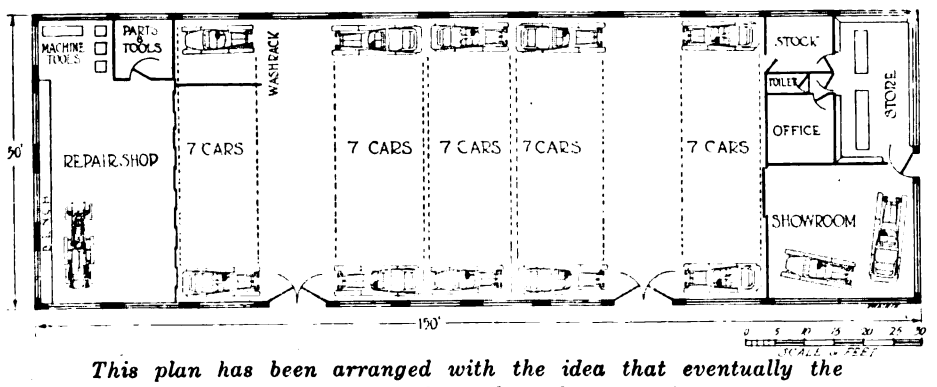
This arrangement gives a well-proportioned salesroom, and the repairshop has been isolated so that customers will not wander into it and disturb the workmen

An accessory display window is of just as much importance to the successful conduct of your business as a car display window, and it is desirable to have the store adjacent to this window, thus making one unit. Therefore, we have placed the store directly back of the window. The store may have a partition separating it from the showroom or not, just as you like. In the plan there is simply a showcase along the border of the two rooms.

The stockroom shown on this plan is mainly for accessories and supplies. Ford parts may also be carried here, although you may find it more convenient to have these in a separate room nearer the shop.

We do not believe it is a good idea to place the shop right next to the showroom as you suggest, because the noise in the shop will be distracting to prospects in the showroom. Furthermore, it is good business to have the shop as far away from the business end of the building as possible, as the presence of prospects or owners in the shop is not desirable.

Another reason for not placing the shop adjacent to the showroom is that it would not be possible to obtain as good a building layout, particularly if it was necessary to furnish as good lighting facilities as the position we have selected provides.



This plan has been arranged with the idea that eventually the building will be enlarged and have three floors. It is not necessary to provide for an elevator shaft until the upper floors are to be put on, though the doors should be cut to avoid doing this afterward

Plan for Plot 96x112

Editor Motor World. Please send me plans for a salesroom, used-car room, workshop, office and storage space, same to cover plot of ground 96 x 112 on a corner, frontage 96 ft. It is the plan of the owner of this building to run same up three stories eventually, though for the present he will build only one story

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high. Obviously allowances will have to be made for elevators to carry cars to the second and third floors. A good accessory room as well as wash rack should not be forgotten.—A. E. Haughton, representing Dodge Brothers, Omaha.

Herewith is a plan drawn to your requirements. It does not seem to call for any explanation other than to say that it is not necessary to build the elevator shafts until the upper stories are added, thus conserving the floor space.

It would be well, however, to build the entrances to the elevators and install the doors so that when the addition is made it will not be necessary to cut a hole in the side of the building in order to make entrances to the elevators.

Equipping a Shop

Editor Motor World: I am sending herewith pencil sketch of location for garage for which I would like the most convenient plans for a public garage, in which will be handled gas and all accessories, room for two new cars, machine shop, plenty of light for the whole building, 50 x 150.

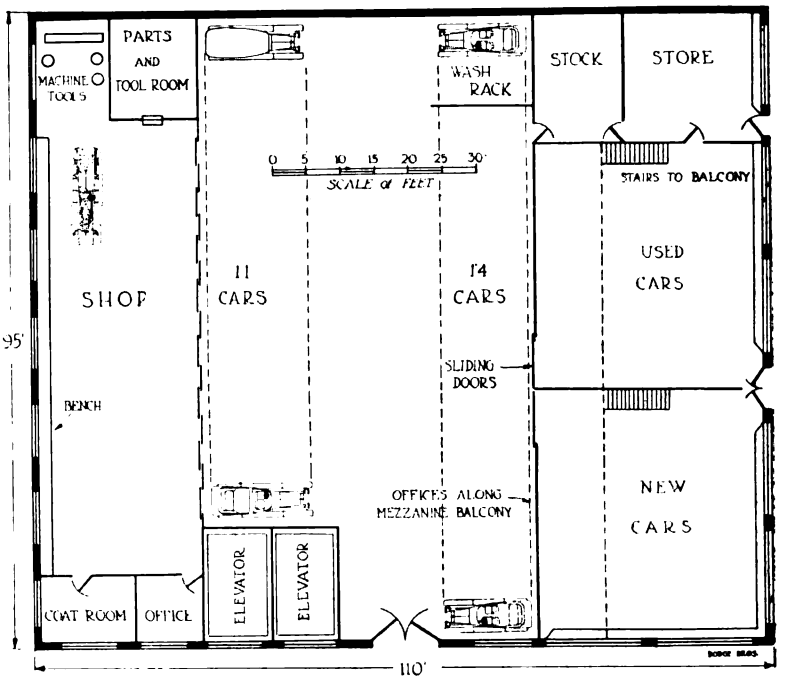
If not too much trouble would like suggestions for the best machinery and tools for the shop, for all classes of work in the automobile line, also the most up-to-date machinery, and where it can be bought. We have electric power and 80 lb. city water pressure.—F. M. Knight, Prairie City, Ore.

Herewith is a plan for a building which will enable you successfully to carry on all branches of the automobile business. Each department has been carefully proportioned to meet your individual needs.

In general it is against the policy of Motor World to recommend makes of tools. We believe, however, that you will find what you want at one of the big machinery dealers on the coast. Whether you buy new or used machinery, your selection may be limited because of reduced stock on account of the war.

You should have a drill press, emery wheel and arbor press. A forge and a lathe are also very desirable. It goes without saying that you should have the necessary tools and attachments to allow you to efficiently use them.

You should have an oxy-acetylene welding and carbon-burning outfit, taps and dies, pullers and a sufficient assortment of wrenches to allow you to do any job quickly.



F. M. Knight wanted a complete establishment with a well-equipped shop and plenty of room for car storage. The shop has been put along one wall to insure excellent lighting



This is somewhat of a fall display, but fall will be with us very soon. The arrangement is quite simple and much of its attractiveness is due to the simplicity. The Auto Tire Co., San Diego, planned the display, which consists entirely of Norwesco products

New Philadelphia Truck Bureau

PHILADELPHIA, June 14—The Motor Truck Owner's Assn. of this city has just formed a permanent bureau whose purpose will be to place the great volume of inter-city motor truck transportation into and out of Philadelphia on a systematic basis in order to stabilize the rates charged for such service. The new bureau will also serve as a return load organization and attempt to procure loads for vehicles passing through Philadelphia or hauling goods from it. It will also endeavor to secure permanent motor truck highways in the vicinity of Philadelphia and will render motor truck owners other service, including furnishing information as to routes, etc. The officers of the new association are William Arrott, president; H. W. Dale, vice-president; George I. Oberholtzer, treasurer, and G. C. Dale, secretary.

Alton Dealers Organize

ALTON, ILL., June 15.—The dealers in automobiles and accessories in this city have formed the Alton Dealers and Accessories Association. Officers elected were the following: President, H. T. Hortman; vice-president, L. T. Hudson; secretary, C. T. Yaekel; treasurer, E. C. Hoefert; directors, Christ Schuette, C. G. Luft and W. E. Winter. The association plans to standardize the automobile business of the city so as to give better service to the owners. It is also probable that service at nights and on Sundays and holidays will be abolished, except through one central station, as has been done in other cities.

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The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer.

THE LAW

By George F. Kaiser

As It Applies to
Dealers
Repairmen
Garagemen

More "As Is"

Editor Motor World: As a subscriber to Motor World, I wish to avail myself of your kind services. I am in the garage business and about a week ago I saw an ad in the local paper offering a Saxon Six touring car for sale.

After having the car demonstrated to me and also driving it myself, I bought it and received a receipt worded, "Received from S. W. Powell $300 for one Saxon 6 touring car as is."

The man at the time said that the battery did not go with the car as the other battery was on charge, and would I bring back the battery in the car as soon as the other one was charged? I said: "You understand that I will return this battery provided the other one is all right and will take a charge and hold it for starting and lighting the car?"

He replied: "That's all right. The battery on charge that belongs to the car is in fine shape."

I went to get the battery in the course of a few days and found it would only take one-half a charge and would not turn the starter over.

I told them that when they gave me a battery that would work as well as the one I was using they could have it, but until such time I would hold the battery in the car. I might mention that they claim that the battery in the car when they demonstrated it to me belongs to one of their customers. I maintain that it is none of my business whom it belongs to —it was used to demonstrate the car as the other one would not run and it was essential to have a good battery in to make the sale, and the receipt—"as is"—was for the car as I bought it, with the battery in which started it.

They obtained a writ of replevin and when they came to get the battery they could not find it.

The case comes up in a few days and I would like to know if I am right in my contention or wrong if they are entitled to the battery. I want to return it to them, but if it is up to them to give me a battery with the car I want to know it also.—S. W. Powell, Detroit, Mich.

Answer—The car which you bought was not really sold "as is," for, as you state in your letter, the seller told you the battery which was then attached to the car did not belong to it and was not to become your property on the sale.

I think under the circumstances that if a replevin suit is brought against you for the return of the battery you will have to give it up. Of course, you might counterclaim for damages for the battery which was not delivered to you. Under the circumstances, as suit has been started, the only proper thing for you to do to protect your interests is to retain local counsel at once. Tell him all the facts fully and honestly and leave it to his discretion as to what course you should adopt.

What Is an "Omnibus"?

Editor Motor World: The inquiry and article in reply to H. Ascher in May 15 Motor World are of considerable interest to me as they apply to a question that has been in dispute for some time here. Will you submit the question to Mr. Kaiser for a decision?

1—Will Mr. Ascher be required to have an Omnibus License Plate on his car?

2—Does a person owning a common touring car have to have it registered as omnibus if they occasionally hire out the use of the car for a trip to some place specified by the person hiring same at a price agreed on by the parties concerned, the owner driving the car and having a chauffeur's license?

One reason for my asking these questions is that automobiles are now being used at funerals here and there are not omnibuses (in cars registered as such) enough to carry the friends attending the funeral, and the private owners are getting tired of furnishing a car and driver free and are refusing to go unless they can receive pay for the time spent and gasoline used, and they do not care to have their cars registered as obnibuses just to accommodate these people. What bearing do Chapters 2724 and 727, Laws of 1917, Amendments to Article II, Highway law, have on these questions?—Otis Doty, Canisteo, N. Y.

Answer—My understanding of the motor vehicle law as it applies to the registration of omnibuses is that an omnibus is a vehicle in which passengers are carried for hire. In other words, I think that even if a car and driver are rented out as horses and carriages used to be rented out by livery stables, that the vehicle will be considered an omnibus and that omnibus licenses will be required.

The New York law provides: "The term 'Omnibus' as used in this article shall include any motor vehicle held and used for the transportation of passengers for hire."

This definition is very broad and includes many vehicles which might perhaps have been properly excluded.

The usual dictionary definition of omnibus is "a large vehicle used for conveying passengers." Ordinarily we think of an "omnibus" as meaning the same as "stage," but our legislators thought different for they have provided a minimum fee for an omnibus holding "five passengers or less."

Rules of the Road

Editor Motor World: We are very anxious here to enact an ordinance that will assist the motorist in a proper understanding of the rules of the road and abolish the old-time method of jacking everybody up for everything and anything for fining them before the recorder. This has proven to us only a temporary means of stopping reckless driving. We wish to put on an educational campaign and have a standard ordinance passed that will enlighten the motorist for his own benefit and, instead of a fine, revoke his license for ignorance of the rules of the road until such time as he may become acquainted with them.

I would like to have a standard practice as to proper method of turning corners, meeting cars, passing cars from the rear, who has the right of way, hand signals backing cars, turning from one side of the street to the other, and many other things important to know. Would like to have diagrams on the subject.—J. G. Barnwell, City Manager, City of Rock Hill, S. C.

Answer—Before going ahead to prepare an ordinance, I suggest that you first make a critical examination of your state statutes relating to motor vehicles. You can get any information that you desire from your state highway commission, which is located at Columbia, S. C.

The following rules and regulations governing traffic on the public streets might be of help to you:

Vehicles shall keep as near as possible to the right hand curb. When other vehicles shall be overtaken they shall be passed on the left.

On turning corners vehicles must keep as near to the right hand curb as is practicable when a turn is made to the right. On turning to the left, vehicles shall turn around the intersection of the center lines of the two streets.

Vehicles crossing from one side of the street to the other must head the same way as the traffic on that side of the street.

When vehicles are proceeding on streets on which tracks are laid the vehicles must be stopped and remain stationary until the street cars have started again. No vehicles shall pass to the left of a street car.

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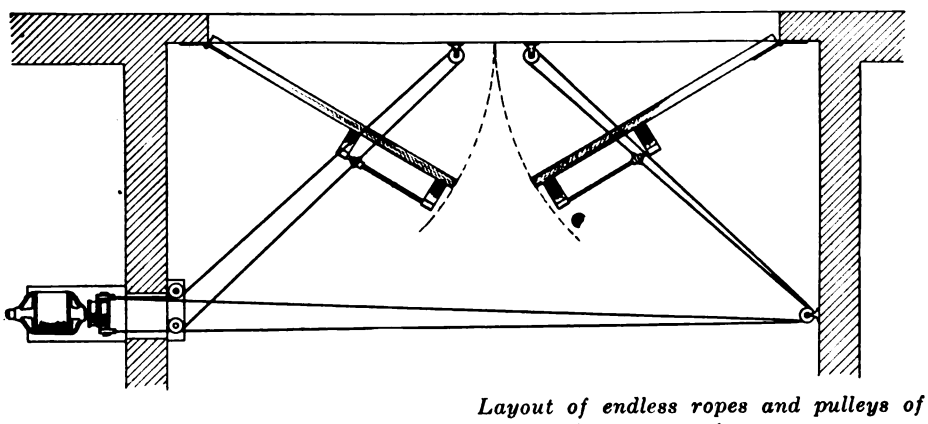
Further adjustment can be obtained by disconnecting the yoke at the front end of each of the two pull rods to either shorten or lengthen the rods.

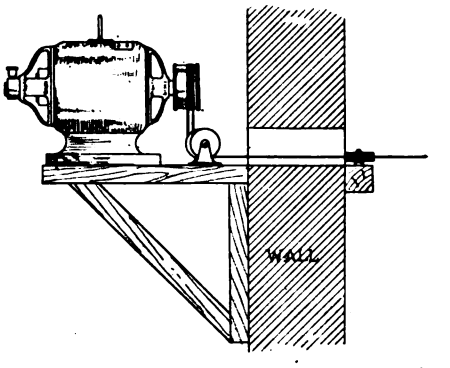
Make sure that the locking nuts are set up tightly after the proper adjustment has been made. This is essential.

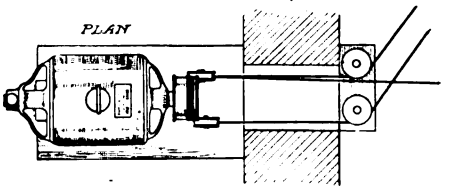
The only adjustment on the internal expanding emergency brake is that on the front end of the pull rod, which can be adjusted the same as the service brake pull rods.

The wheels should turn freely, but not too freely, with the brakes released and the gear shift in neutral. With brakes properly adjusted, either set should be capable of locking the wheels when the car is on the road.

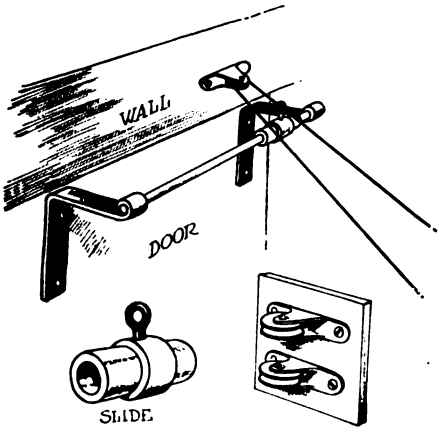
Simple Electric Garage Door Opener

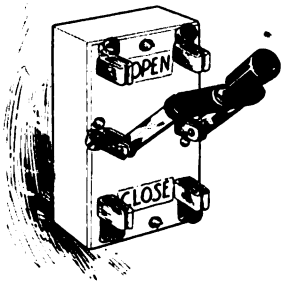


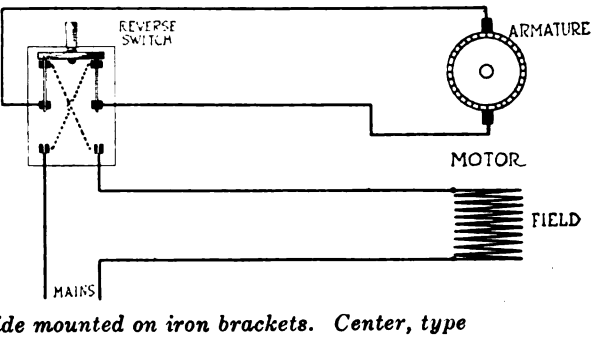




Layout of endless ropes and pulleys of electric door opener for garage as seen from above. Right, section through wall showing method of supporting motor on bracket and arrangement of drum on the motor shaft







Left, method of attaching endless rope to door by means of slide mounted on iron brackets. Center, type of reversing switch to be used. Right, diagram of connections of switch and motor. If two switches are desired the second one should be connected in parallel with the one shown, that is, wires should be led from the terminals of one to the corresponding terminals of the other

SWINGING garage doors may be opened from any point in the shop by means of an electric motor coupled up to a rope and pulley system. The motor is of the reversing type and the armature shaft is fitted with a drum over which the ropes operating the door are passed. One continuous rope runs from the motor to a pulley over the upper edge of each door half.

Connection is made between each of these ropes and a slide on the door, so that when the motor is driven in one direction the doors are pulled open, and when reversed the doors are closed. The motor used in this system should be about one-half horsepower and the reversing switch may be placed either in the office or in the shop at the rear, or, if desired, switches may be installed in both places. In this case it is only necessary to connect the switches in parallel, that is, a wire should be connected to each of the terminals of one switch and led to the corresponding terminal of the other switch.—American Garage, Detroit.

McCord to Market Heath Duplex Bodies Direct

DETROIT, June 14—The McCord Mfg. Co. will establish direct selling connections with distributers and dealers for the Heath duplex folding delivery body for the Ford chassis. This body is interchangeable with the tonneau of the Ford body. H. E. Westerdale has been appointed sales manager of the Heath duplex division of the company. He was formerly assistant sales manager of the Hupp Motor Car Corp., Detroit, and has been a branch manager for the Studebaker Corp.

Baird Distributes Collier Trucks

PITTSBURGH, June 14—The Baird Machinery Co., which deals exclusively in machinery, mill supplies, etc., has taken over the distribution of Collier trucks in a large portion of western Pennsylvania. The company is perfecting a dealer organization.

Government Commandeers Fader's Garage

WILMINGTON, DEL., June 17—The United States Government has taken over the garage of the Fader Automobile Co., at Newark, Del., as a training center for automobile mechanics, with Frank Fader as instructor. The company, which has the Ford agency for that town, will secure other quarters for the agency, but will discontinue the garage business for the summer months.

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Repairshop Shortcuts

From Motor World Mechanics

No. 1709—EMERGENCY RADIATOR REPAIR

Cellular type radiators may be temporarily repaired by stopping up the ends of the leaky cells with ordinary chewing gum. Radiators of this type are exceedingly difficult to solder, and unless a person familiar with the work is available, it is best practice to repair it in the above manner. Radiators have been known to run from 1 to 2 months without further attention.—S. T. W.

No. 1710—BATTERY FLUSHER

A convenient way to flush storage batteries is to hang a wooden bucket on a hook that is long enough to hang on one of the rafters, or on a strong wire strung over the bench. Water is syphoned off with a rubber tube into each cell. A copper pipe bent into a U-shape is used to go over the edge of the bucket so that the flow of water will not be restricted by a kink in the hose.—H. S. Craven, Locomobile Sales Co., Hartford.

No. 1711—HACKSAW REST

When long pieces are being cut off in the power hacksaw, some sort of a rest is necessary to support the work. Such a rest is shown, comprising two adjustable uprights, connected by an iron pipe, or roller, held together by a tie rod, and sliding in a wooden base. Adjustment is effected by pinning the sliding upright in the required position. Such a rest is also useful in welding work, and when working on long pieces at the bench.—S. T. W.

No. 1712—ENGINE SLING

Multi-cylinder engines of V-type construction may be readily lifted from the frame on a sling made of two pipes, and four steel wire cables. The ends of the cables are looped, bound with wire and soldered, and may be slipped over the pipe, or the chain hoist hook.—S. T. W.

No. 1713—VALVE-PIN INSERTER

A device to insert valve pins in cramped places is made by cutting down an oil-can spout so that a valve pin will fit in the end without binding. A dent is made in the spout 3/16 in. from the end to keep the pin from slipping too far in the spout. Using the spout as a holder, the pin can be slipped in its hole.—Harry Hagen, Buffalo.

No. 1714—SOLDERING IRON STAND

Safety necessitates the use of some sort of a metal stand for electric soldering irons, as otherwise they may come in contact with some inflammable material, and cause a fire. The stand illustrated is quite satisfactory, the iron resting on two M-shaped pieces of strap iron, attached to a wooden base. The method of mounting the acid jar in the base should be noted.—S. T. W.

No. 1715—MULTIPLE EXTENSION BOX

Frequently, when working on a car, it is necessary to use an inspection lamp, a drill, and perhaps an electric soldering iron, and in exceptional cases only are there enough plugs and extensions at hand to permit this to be done. By the use of a multiple extension box, several leads may be taken off from one main line plug. This box consists of several extension plugs, connected in parallel, through a fuse to an extension cord. The cord is plugged into the line in the usual manner, and the box is carried to the job, providing the several required outlets.—S. T. W.

No. 1716—ADJUSTABLE SUPPORT

An adjustable work support that can be made different heights is made by soldering or brazing an old wheel flange to a piece of pipe in which the work support, forged from iron, slides. A thumb screw locks the support at the desired height.—Robert P. Ewer, Bangor Motor Co., Bangor, Me.

No. 1717—FILE HOLDER

It is difficult to remove material from a large flat surface with the ordinary file, and when this is necessary, a special file holder may be used to facilitate the work. In this holder, the file is held by brass cleats to a wooden handle, the ends of the file being squared off, and ground down so that the file teeth project beneath the cleats.—S. T. W.

$1 a Helpful Kink

HOW often have you been compelled to rack your brain to overcome some difficulty? But when you did find a solution—what a satisfaction it was! Well, here's a chance for you to dig some of those life-savers out of their hiding places and put them to work for your fellow-craftsmen. Send them to Motor World. We will pay you a dollar for every one accepted for publication. The only requirements are these: 1—*Describe the short-cut briefly but clearly, in few words.* 2—*Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job.* 3—*Write on ONE side of the paper only.* 4—*Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual, print it in capital letters.*

Philadelphia Garagemen May Increase Storage Charges

PHILADELPHIA, June 15—Members of the Philadelphia Garage Association, which met for the first time with the new president of the organization, George G. Blind, in the chair, announced that they expected this fall, probably beginning Sept. 1, an increase of at least 10 per cent will be made in storage charges for cars; that charges also will be increased on repairs, and that on account of the high cost of labor and the difficulty in obtaining men to do the work, night washing of cars will be abandoned for the duration of the war. At present night washers demand and are being paid $25 a week.

As early as next month, it was said, an agreement probably will be made by the members of the association to charge $14 a month, instead of $15, as at present, for storage on Ford cars.

Rates for storage on cars at present now range about as follows, types of cars being taken, for example, to show the range, the maximum being the Pierce-Arrow limousine, with 147½ in. wheelbase:

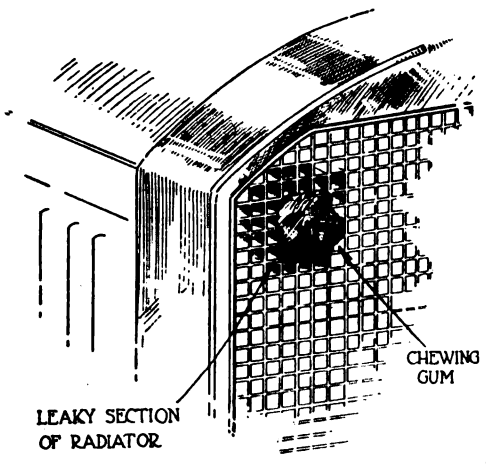
Pierce-Arrow limousine, live storage, $27 a month, dead $14; touring car, $22 a month. Packard, 135-in. wheelbase, $26; 126-in. wheelbase, $19. Dodge, limousine, $18 a month; touring car, $15. Other cars in proportion. The present charges for cars for a night's storage without special care, such as washing, range from $1 to 75 cents, according to size of wheelbase.

Preparations for the association's "sociability run" indicate that no less than 75 cars will be in line.

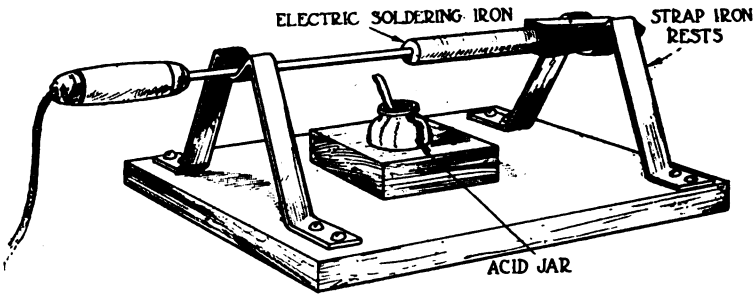
Moline Model D Is $1,385

MOLINE, ILL., June 14—The new four-cylinder Model D Moline tractor sells for $1,385 f.o.b. Moline, including a two-bottom Moline plow.

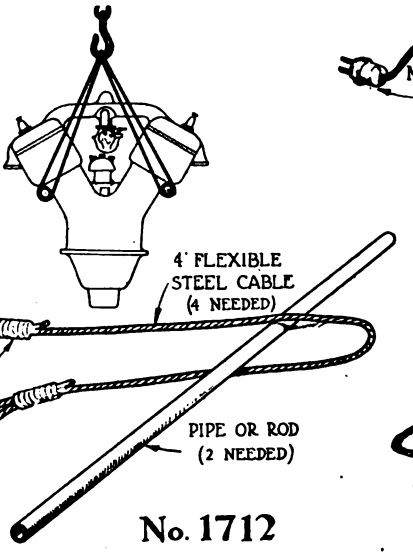
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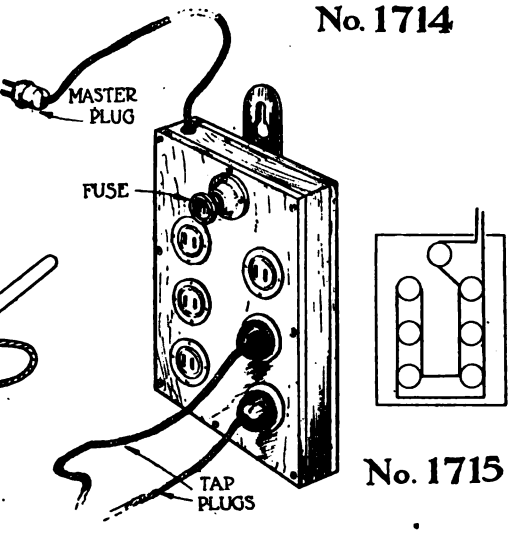
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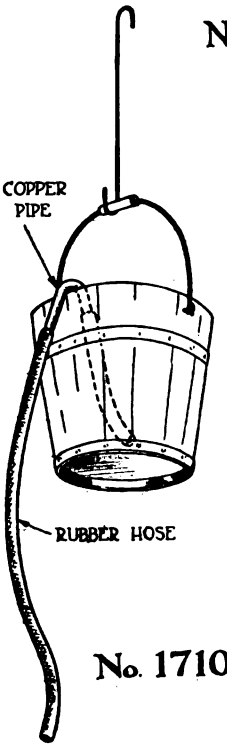
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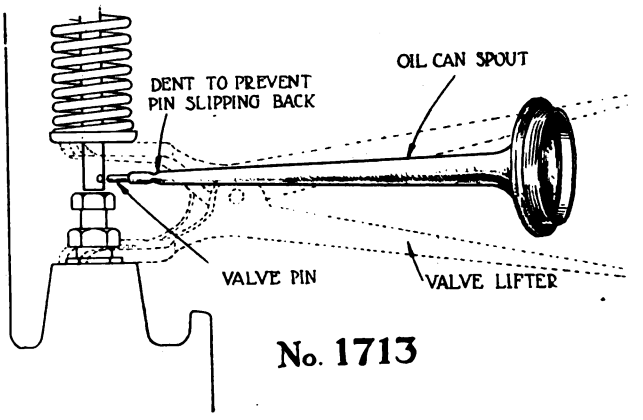
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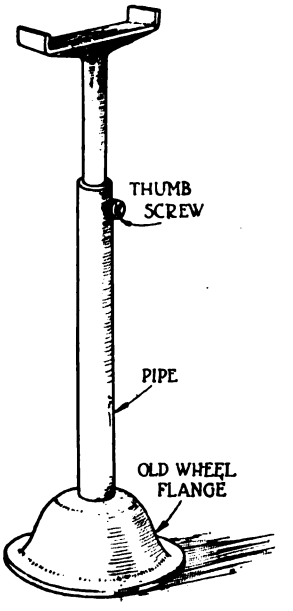
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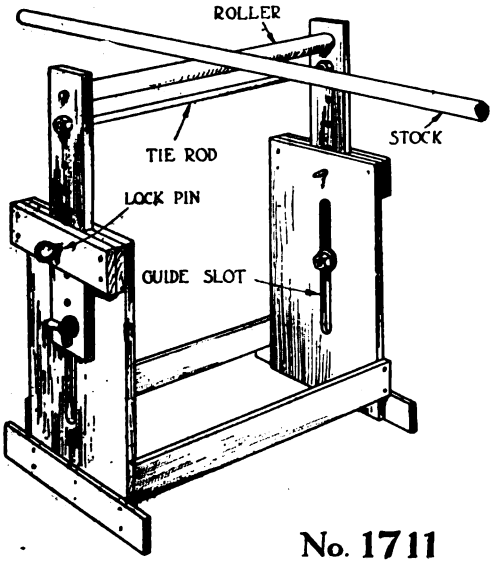
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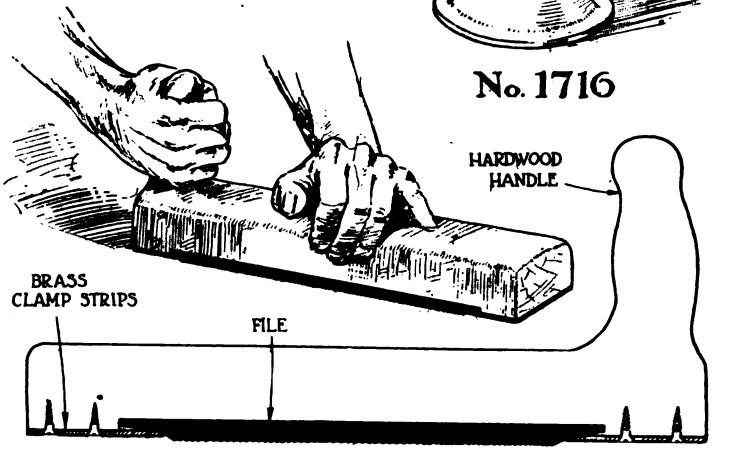
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Editorial Observation

Gasoline Shortage Myths

WE constantly hear stories to the effect that there is a shortage of gasoline. *There is nothing to them.*

We hear more stories to the effect that gasoline will be taxed—one story had it that a prohibitive tax would be placed on it commencing July 31.

There is nothing to them.

Suppose, for a moment, that we examine into statistics. Let us find out the truth of the matter, and once and for all kill this gasoline shortage myth.

To-day, the refiners of the country are producing gasoline at the rate of *well over eight and one-half million gallons per day.* This is more than two million gallons a day in excess of the 1916 production.

To-day, the refiners of the country have 526,382,385 gal. of gasoline stored away for future use.

On December 31, 1917, the total amount of gasoline in storage amounted to 412,526,833 gal. Between the end of last year and the present these stocks of gasoline have increased 114,125,553 gal. *In short, we are producing far more than we are using up.*

Crude oil is the base from which gasoline is produced. During the month of March, which is the latest month for which United States Government figures are available, there were taken from the earth 26,239,662 barrels. Allowing 50 gal. to the barrel, this is 1,311,983,100 gal.

To get this down to figures that we can grasp, let us say that during March the refiners took an average of 42,332,050 gal. a day out of the ground. *This is* 2,000,000 *gal. per day more than was produced in March,* 1917.

The production of crude oil will go on increasing. Production of oil has been classed by the War Industries Board as highly essential to the Government's program for the prosecution of the war.

The United States Fuel Administration has stated that it will see that the oil industry is adequately supplied with all the steel it needs to push production and open up new wells. Oil is on the preferred list.

Further: The Government is to-day short of fuel oil. This is crude oil after the lighter distillates have been taken out, such as gasoline, kerosene, etc. Crude oil is too volatile to be burned under boilers in ships and for other industrial purposes.

In short, in order to produce the required quantity of fuel oil, the refiners must produce gasoline. They must go on producing it in ever-increasing quantities.

As for the tax: Leading oil men say that such legislation never will be enacted, and even if such a tax were levied it would be a very small one which would be designed purely to produce revenue and not to stop the use of gasoline.

Any prohibitive tax which was placed on gasoline would defeat its own object. It would curtail the use of gasoline and great stocks would pile up just as great stocks of kerosene piled up a few years ago.

For don't forget that the United States Navy and the navies of our Allies must have fuel oil.

And you can't make fuel oil without making gasoline.

But this is no time to waste gasoline. This is the time when *everything* must be conserved. Dealers must educate owners to the necessity of eliminating waste—to the need of using every drop. Kill all idle engines. There is no shortage now, but don't let us waste the fuel we have.

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Letters from Readers

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.


The Motor World. 543

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THE KAISER WATCHING THE FRENCHMAN WIN.

This picture, which was printed in the July 7, 1904, issue of MOTOR WORLD, *was prophetic, to say the least. Take a slant at Kaiser Bill when he was 14 years younger, but no less arrogant. He is watching Thery, a Frenchman, win the Bennett cup race which was run at Homburg, Germany*

Oldsmobile Adjustment

Editor Motor World: How do you adjust the bronze bearing for the connecting rods on the Oldsmobile, the eight-cylinder engine? They tell me it cannot be adjusted, and I do not see why, so I am writing to you for your aid. Do I take out the bushing and file it until it is the proper fit and then adjust the rods the way you said in Motor World? Will it work all right now if it is right? Can I do the same thing on all engines with that style of bearing?—Valmore de Lasalle, 180 Huntington Avenue, Providence, R. I.

Answer—We are glad that you did not hesitate to ask us for further information, as it is our desire to aid our subscribers in any way that is possible.

The bronze bearing on the eight-cylinder Oldsmobile can certainly be adjusted in the same manner that the bearings are adjusted on any cars. First the bronze bearing is adjusted to fit the crankshaft and then the blade and fork rods are fitted in the manner described in the Better Mechanics stories which you have. The main point in this work is to observe the clearances as given in the article.

This is exactly along the lines you suggest in your letter and is the way that the work should be done. The directions apply to all bearings of this type.

We have no special binding for the Better Mechanics stories and the short cuts. However, we have published a complete book of the short cuts and are at present publishing the Better Mechanics stories in book form. If you desire these, they can be obtained direct from our New York office.

14 Years Ago!

Editor Motor World:

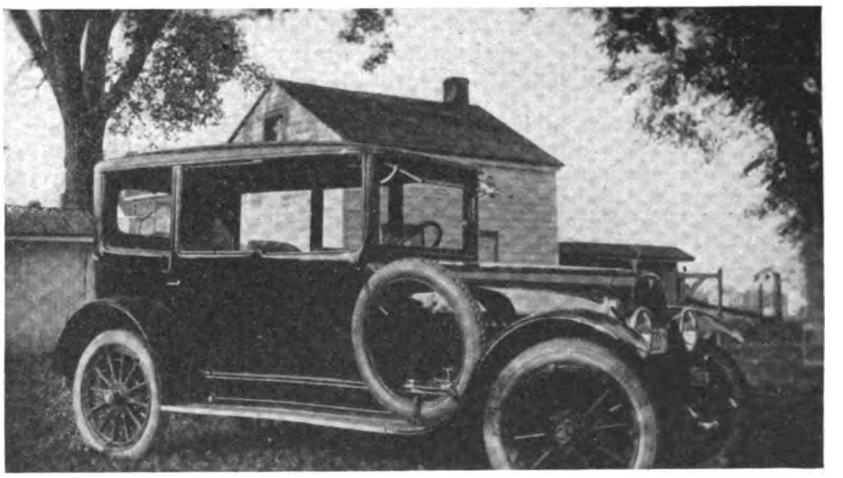
"The Kaiser Watching the Frenchman Win" is the pathetic title of a cut line on page 543, Vol. 8, No. 15, of the Motor World, issue July 7, 1904. I ran across the interesting bit of history while looking through an old volume of the Motor World and thought you might desire to refer to it in a current issue.—The Pierce-Arrow Motor Car Co., W. M. Baldwin, Editor "Pierce-Arrow Salesman."

Columbus Tractor Expanding Plant

COLUMBUS, OHIO, June 15—The Columbus Tractor Co. has practically completed arrangements for several important additions to its plant, located on West Goodale Street. An option has been secured on a 10-acre tract of land adjoining the present plant and added factory units will be constructed. The company was recently organized with a capital of $1,000,000 to manufacture the Farmer Boy tractor and has taken over the plant and assets of the McIntyre Mfg. Co.

Farmers and Sedans

Editor Motor World: Talking about farmers and their sedans, how does this "Super-Six" look in the farm yard of J. W. Bliley, Chesterfield County, Virginia.—Sincerely, Les E. Bliley, Richmond, Va.



Les E. Bliley sent us this picture from Richmond, Va. Has any other reader of MOTOR WORLD *sold a sedan to a farmer? Send us a picture*

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Getting In the Wheat

How Kansas and Missouri Dealers Are Giving the Farmers a Helping Hand

And How They Look After Service With Half Their Mechanics Gone

By Ben S. Brown

THE motor industry of Kansas and Missouri is making heavy sacrifices to get the wheat harvested this summer. Dealers and garagemen are responding to the utmost limit—and in many cases beyond the limit—to the call for harvesters.

No industry in Kansas City or in any of the towns in the two states has met the call for farm hands with more eager readiness.

There are many comments on this expression of loyalty by the motor car industry. In Kansas City especially it has been the big feature of the drive for farm help. High compliments have been passed upon the dealers and the service stations and their example has been used extensively in the stimulation of other industries in releasing employees for work on the farm.

In Kansas City, and in every large town of the two states, campaigns have been in progress the past 2 weeks to list men for farm work, one class of which can go at once and stay all summer, the other class being men and women now employed who will go if the emergency demands it. It is possible that many of the volunteers will not be called upon—if they are needed, they are ready to go. And their employers are ready to suffer the embarrassment of their absence.

We Must Save the Wheat

Business men as well as employees realize thoroughly that unless the wheat is saved, our boys will not have sufficient food—and there will be a serious setback in the agricultural industry of the district.

Missouri communities are taking care of their own farm labor demands. In nearly every town, local police officials and county officers are rounding up the idle labor and forcing them on to the farm. Numerous instances are related of farmers who have taken the loafers and found them able to help materially in the farm work, in many cases the entire local demand being cared for with such previously idle men and the necessity being obviated of calling men from their steady business. Missouri probably will not call upon people outside the state for harvest help.

In Kansas, however, several thousand outside helpers will be needed. The volunteers from Kansas City, Missouri, probably will all be sent to Kansas if the need arises.

Motor car dealers in numerous Kansas towns are planning to send their employees into the fields during the day, if needed. But whether the men go into the fields or not, the service shops will be closed with other business houses, during the day—and will keep open at night, for making repairs on motor cars and farm equipment, or answering calls.

The campaign for enlisting farm labor in Kansas City is said to be unique. Several hundred men worked, calling on every business house, soliciting competent farm help for service for two weeks or all summer. Employers generally were generous in allowing the men to sign; many urged all who could do farm work to go, however much their absence would interfere with firm work.

Nearly 4000 Men Secured

Nearly 4000 men were secured who could spend the entire summer in harvest work. There were about 2000 former farmers who would leave their city jobs for 2 weeks or more, going anywhere they were sent. The other 2000 were mechanics and clerks who were the last resort, and who would go if the emergency demanded, though they would not be of great service under ordinary circumstances, and were badly needed in their city jobs.

Each man enlisted was classified. This classification is of great value, and constitutes one of the most important features of the campaign. There are several hundred mechanics, for instance, men who have not volunteered on the reserve service as experts for the government work.

It is expected that they may possibly be called upon to go into the harvest districts, not to work on farms in the wheat fields, but to serve in the places of local mechanics who have gone to the farms. For it is realized that the small-town mechanic is nearly always familiar with farm work, and that he would be very useful to the farmer in his capacity as mechanic. But his work in the town shop could be well done by the city mechanic.

The loyal generosity of Kansas City motor car dealers is well illustrated by a few specific instances.

Albert E. Hoyt, manager of the Kansas City retail store of the Chevrolet Motor Co., informed the solicitors that he would close his service station for the month of pressing harvest demand, if the insistent call came. All his service shop men enlisted; some are not farmers, however, and may not be called out.

J. Frank Martin, manager of the Buick branch at Kansas City, donated the service of three men for 2 weeks' service, paying their salaries while they are gone; two are warehouse men, one a mechanic.

The Ford Motor Co. contributed 10 per cent of its working force during the harvest season, and assisted in securing the enlistments of this number. The men will go from the assembly plant in groups, so that not more than 10 per cent will be gone at a time, and no group for longer than 2 or 3 weeks. The other employees enlisted also—for they agreed to work overtime to get the work done while the 10 per cent were away.

The Garford Motor Truck Co. will close down in Kansas City establishments, and everybody will go to the fields, if the emergency call comes.

The Greenelase Motor Car Co., Cadillac dealer, arranged that 40 per cent of its mechanical force should be absent on the farms during the season.

The General Motors Corp. of Missouri permitted six of its mechanics to sign up.

Six mechanics of the Doughterty Motor Co., Republic truck dealer and distributer, signed, these being specified for tractor work.

Allen & Jackson Motor Co. arranged that four mechanics would go one period, to be followed by four more.

All but one of the mechanics in the Grant Motor Sales Co. enlisted—the one knowing nothing about farms; the salesmen also enlisted.

Three men enlisted from the McDowell Motor Co., Paterson dealer.

Three mechanics signed from the Cole agency. In all these, and numerous other cases, the men are given vacations (usually without pay) for such farm work, and their positions will be there for them when they return. Many salesmanagers and salesmen have enlisted; and there are numerous instances where mechanics

(*Continued on page* 44)

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The RETAIL NEWS

MIDDLE WEST

E. S. Merrill has taken the agency for the Auburn car at Decatur, Ill., and will open a salesroom and service station on South Franklin Street.

W. L. Childers has opened a repair station at 504 Jersey Street, Quincy.

E. C. Long has opened a salesroom for Packard and Franklin cars in Quincy, Ill.

The Morris Adler Moller Automobile Co. is moving into a new salesroom and service station at 223 North Sixth Street, Quincy. The company will have a complete plant and equipment and will sell Dodge Brothers and Maxwell cars.

Pfanschmidt & Marshall have opened a battery and supply station at 427 Vermont Street, Quincy, and have taken the agency of the Pan American car.

The Baldwin Service Station has moved to new quarters at 1109 Kentucky Street, Quincy.

Cutforth Brothers have opened a service and repairshop under the style Market Garage at 914 Hampshire Street, Quincy.

Eric J. Gustafson has opened a service station and repairshop at 413 South Winnebago Street, Rockford, Ill.

E. H. Cohoon & Co. have opened a service station on Church Street, Rockford, Ill.

W. Wilcox has opened an accessories store and tire shop at 901 East State Street, Rockford, Ill.

John Dee, Rock Island, Ill., has sold his interest in the Paige and Saxon agency to Cole Finch, Buick dealer. Finch will move to 1612 Third Avenue shortly.

The Jennings Auto Sales Co., Springfield, Ill., has taken the agency for the Fordsom tractor.

J. B. Bliss and **B. C. Bruce** have opened a salesroom at 206 East Monroe Street, Springfield, and will handle the Stearns Knight.

The Howard Cranfill Co., South Bend, has succeeded Farneman & Cranfill, accessories and tire dealers. Howard Cranfill is president and William Bender, Jr., treasurer of the new company.

The Don M. Harris Co., Detroit, has taken the agency for the Acason truck.

Frank S. Wright has opened a used car store at 1372 Grand River Avenue, Detroit.

A. M. Allen, Flint, Mich., has been appointed distributer of the Harroun car for Genesee County, and has opened quarters in the Gillet Bldg.

John Kramer, Fowler, Mich., has purchased the Weber Garage and will engage in repair work. He has the agency for Ford cars.

Wickham & Nash, Gladwin, Mich., have dissolved partnership. Mr. Nash will continue the garage business.

The Boomhower Auto Supply Co., Grand Rapids, which also has stores in Muskegon, Battle Creek and Marshall, has opened a branch at 106 Division Avenue. A full line of accessories and a complete stock of Diamond tires will be carried. A chain of 7 stores have been established in the middle west. Perry E. Nichols will have charge of the Grand Rapids store.

The Universal Garage, Hastings, Mich., and **Hurd's Garage,** Nashville, Mich., have been appointed sales and service agents for the Fordson tractor in Barry County.

Prof. Keuny, Muskegon, Mich., has taken over the garage business of George Farhenback.

A. T. Smith, St. Johns, Mich., has been appointed distributer of the Fordson tractor.

L. H. Sackett of the Sackett Motor Car Co., Columbus, has taken the central Ohio agency for the Smith Farm-a-Truck. The territory includes Columbus and 10 counties. He has moved his salesrooms to the former location of the Smith agency at 165 North Fourth Street. The Sackett company also has the central Ohio agency for the Elgin.

The Throne Auto Co., Toledo, Haynes and Chevrolet distributer, has opened its enlarged and newly-finished sales and display rooms at 1013 Jefferson Avenue. In addition to the Jefferson Avenue quarters, motor service has been established in the garage building at Monroe and Thirteenth streets.

The Hooper Motor Co., Youngstown, Ohio, has secured the agency for the Fordson tractor.

George Hicks has opened a tire and vulcanizing shop at 107 West Maple Avenue, Beaver Dam, Wis.

The Lauterbach Sales Co., Cedarburg, Wis., has been formed by John Lauterbach to take over the representation of the Ford car and Fordson tractor in that city and vicinity. Mr. Lauterbach was formerly manager of the Cedarburg branch of the Schumann Motor Co., Menominee Falls, Wis., Ford dealer.

The Mitchell Auto Sales Co., Madison, Wis., has been organized by W. R. Bentley and G. E. Teckmeyer to represent the Mitchell in Dane County and a part of Columbia County. Headquarters have been established in the Ritter Garage, 220 North Henry Street, Madison.

New Garages

Sopers Garage .....Rockford, Ill.
Joseph McPhillips.....Flint, Mich.
Albert Dix Co.215 Graham Street, Milwaukee
Wadhams Oil Co.
395 Clinton Street, Milwaukee

PACIFIC COAST

J. J. Reeves, Overland and Willys-Knight dealer at Auburn, Cal., has opened salesrooms and a service station.

Verne M. Ford, Auburn, Cal., has resigned from the firm of Ford & Son and has opened salesrooms for the Dort and Mitchell in the Odd Fellows Bldg.

J. B. Clark has opened a branch of the Western Auto Supply Agency of Los Angeles at 1028 Jay Street, Sacramento.

Douglas Boswell, dealer in Best Tractors and G. M. C. trucks, has moved from 1312 U Street to 1227 Seventh Street, Sacramento.

The Sacramento Valley Tractor Co., Sacramento and Chico, Cal., has opened salesrooms for the Monarch tractor and Denby truck at 1208 Eighth Street, Sacramento.

The Savage Tire & Supply Co. has moved to a new building at 1308 K Street, Sacramento.

G. P. Louthain, formerly part owner of the Lincoln Highway Garage, Sacramento, has opened a salesroom and service station on K Street for the Oldsmobile.

The James S. Remick Co., Sacramento, has moved to larger quarters at Tenth and Jay Streets.

The Bowman Auto Supply Co., Sacramento, has moved from Tenth Street to larger quarters at Tenth and Jay Streets.

Vail & Smith have purchased the Phoenix Garage, Sacramento.

Burt Warren, purchasing agent for the city of Sacramento, has formed a partnership with G. W. Richards to conduct a vulcanizing plant and Diamond tire salesroom. An office has been taken at Fourteenth and Jay Streets.

The H. A. Seller Co., distributer of Signal and Stewart trucks, has opened a branch salesroom at 1308 K Street, Sacramento.

The Flynn Motor Car Co., Stockton, Cal., has been consolidated with the Chandler agency of A. E. Hunter. The new firm will be styled Mecum, Flynn & Hunter. The organization will occupy a new building on K Street.

The Portland Tire & Truck Co., Portland, has taken over the agency of the Lee truck equipment for Oregon and Washington.

The Gates Co., Seattle, distributer of Perfection tires, has taken over the Queen City Garage at 420 Queen Anne Avenue. The new quarters include a repair plant and small plant for manufacturing the Tyre Tyte for pneumatic tires.

The Northland Tire Co. has opened quarters at 1125 Pike Street, Seattle, as local distributer for the Automobile Tire Co.

James Cunliffe, Seattle, former manager of the truck department of the Seattle Automobile Co., has taken over the agency for the Kor-Ker tire treatment and puncture cure. A salesroom and filing station have been opened at 1112 Western Avenue.

The Summit Motor Car Co., Seattle, has been organized to succeed the Metz Co., with William Bradshaw as president and D. H. Hotchkin, secretary and treasurer. The Summit company has been appointed Northwest distributer for the Saxon, and will continue to handle the Metz cars.

Manley Thompson Bros. & Davidson, Tacoma, distributers of Ford cars, have moved to a new location at 1302 Fawcett Avenue. The old quarters at Ninth and Tacoma Avenues will be retained for accessories and supplies.

T. M. Kirk, owner of the Wapato Garage, Wapato, Wash., has sold his garage to Frank Cast, who will conduct the business, and make extensive additions to the garage.

Warren Brothers, Wenatchee, Wash., have taken the agency for the Diamond T trucks.

New Garages

Stanfield Auto Co.....Stanfield, Ore.
C. A. Horse & Son.....Bellingham, Wash.
Auburn Motor Car Co.....Spokane
F. A. Williams.....Spokane

New Truck Dealers

Hirsch Motor Co., San Francisco. Traffic.
Pacific Motor Truck Co., San Francisco. Stegeman.
Frank O. Renstrom Co., San Francisco. Atterbury.
Spencer Auto Sales Co., San Jose, Cal. Traffic.
Bardshar Motor Co., Seattle. Stegeman.
Roesch Motor Car Co., Seattle. Atterbury.

EAST

The Overland-Harper Co. has opened a branch at Atlantic City, N. J., opposite the Reading station. George B. Albrecht, formerly on the sales staff of the company's main office in Philadelphia, is in charge.

Cole & Dixon, Inc., has opened a salesroom and service station at 204 Washington Avenue, Albany, for the sale of Denby trucks and Smith Form-A-Truck attachments. W. R. Mason is in charge of the Albany branch.

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Russell L. Engs, Inc., has established a temporary showroom for the Cole car at 1850 Broadway, New York. This is more or less in the nature of an experiment as to location, and if it works out successfully it is intended to take permanent quarters on Broadway.

The Stability Motors Co., Philadelphia, has moved to a new salesroom and service station at Croskey and Twenty-eighth Streets.

The Auto Ignition Co., Philadelphia, has leased the second floor at 1506 Callowhill Street.

The Gillette Rubber Co. has opened a Philadelphia branch at 677 North Broad Street, under the management of A. C. Hulshizer.

New Garages

John B. Baltz,
64th St. and Overbrook Ave., Philadelphia
A. Finkelman,
2340 S. Third St., Philadelphia
H. B. Johnson (addition),
1508 Brandywine St., Philadelphia
H. P. Johnson,
2406 N. 54th St., Philadelphia
H. P. Johnson,
5413 Wynnefield Ave., Philadelphia
Alfred Steinhausen,
5325 Rising Sun Ave., Philadelphia
Alfred Steinhausen,
5428 Westford Road, Philadelphia

New Truck Dealers

E. E. Wentworth, Portland, Me. Atterbury.
Schall-Crouch Auto Co., Baltimore. Atterbury.
Slayman & Co., Baltimore. Stegeman.
Switz Auto Co., Baltimore. Rainier.
Connell & McKone, Boston. Atterbury.
John L. Judd Co., Boston. Traffic.
Walker-Johnson Co., Cambridge, Mass. Stegeman.
Tremblay & Hathaway, Springfield, Mass. Rainier.
Veitch-Hall Motor Co., Newark, N. J. Rainier.
Central Garage Co., Paterson, N. J. Atterbury.
Hudson Oliver Motor Co., Buffalo, N. Y. Federal.
R. C. Sprague, Chateaugay, N. Y. Rainier.
Otis Motor Sales Co., Utica, N. Y. Atter-

SOUTHWEST

Cantrell & Wolever, Fredonia, Kan., have bought the stock of the Singleton Supply & Automobile Co. They will continue to handle Dodge Brothers cars.

Cambridge & Hudsley, Garden City, Kan., have bought the vulcanizing establishment of L. L. Shimer, known as the "Tire Hospital."

Alex. Schueler, Jr., John Staab and Ferdinand Staab, Hays City, Kan., have bought the Bemis Garage.

E. H. Gaff, Hutchinson, Kan., has bought the Exide Battery Station.

R. U. LaFever, Kingman, Kan., has leased the LaFever Garage.

The Hodgson Tire & Supply Co., Little River, Kan., has opened quarters.

Paul Long, Logan, Kan., has leased the garage and machine shop of A. Wiley.

A. B. Baringer, Longford, Kan., has bought a controlling interest in the Motor Inn Garage.

Henry Minton, Marion, Kan., has bought the Tibs Garage from Al Fishburn.

J. H. Blocker, Marysville, Kan., has moved his Tire Repairing Shop from 519 Broadway to 107 South Fifth Street.

Arthur Rowden, Moscow, Kan., has bought the Ramsey Garage.

The V. E. Boyles Garage, Pittsburg, Kan., has installed a vulcanizing plant and repair-shop.

F. W. Brandt, Plainville, Kan., has moved his battery service station and garage into the J. W. Durnall Building.

Fred E. Brown, Salina, Kan., has bought the garage business of Bragg & Norris at 215 North Santa Fe.

John Tottberg, Tipton, Kan., has sold his interest in the North Garage to Wm. Sackhoff, Jr., and the firm will now be styled Sackhoff & Zeidel.

J. E. Bumstead, Wichita, Kan., has bought the West Side Garage from Harry Myers.

Herman Meyer, Boonville, Mo., has bought the interest of H. G. Hurt in the Brownfield & Hurt Garage.

A. M. McCrea, Lamar, Mo., has leased his Ford garage on West Pacific to Clarence Duncan of West Plains.

R. C. Potter, Malta Bend, Mo., has bought the Charlie Simpson Garage.

The Wilson Motor Car Co., St. Louis, has taken the agency for the Acason truck.

The Mid-West Motor Car Co., St. Louis, has been organized by H. W. and T. A. Leigh to sell Rainier trucks. Another truck will be added later.

Burns & Elwell, Warrensburg, Mo., have bought the Kendrick Garage.

The McCollough Hulme Motor Co., Oklahoma City, has moved to a new service station and salesroom at 312 North Broadway.

The Goodyear Tire & Rubber Co., Oklahoma City, has moved into larger quarters at 208 West Second Street.

The Miller Tire Branch, Oklahoma City, has opened a salesroom at 511 North Broadway.

Burton-Lary Co., Oklahoma City, has been appointed distributer for the Hupmobile for the State of Oklahoma. This is an associate company of the Burton-Roudtree Co., Dallas, which is state distributer for Texas.

A. L. Burk, Coleman, Tex., has purchased a half interest in the Coleman Machine Shops and Garage from Garland Woodward.

H. A. Berkner, Rockport, Tex., has bought the Rockport Garage, and it is now styled the H. A. Berkner Garage.

New Garages

Ashland Auto Co.....Ashland, Kan.
Peter Wagner .....Beloit, Kan.
Chas. Knotts.....Burlingame, Kan.
Albert Beyers.....Burrton, Kan.
Arnold Auto Co.....El Dorado, Kan.
A. B. Smith.....Lost Springs, Kan.
Stout Motor Co. (addition)....Marion, Kan.
C. A. Harbaugh.....Minneapolis, Kan.
Tarr & Son.....Neodesha, Kan.
Ralph Johnson.....Salina, Kan.
John Jackson.....Sedan, Kan.
J. H. Tudor.....St. John, Kan.
Wallace & Landes.....Yates Center, Kan.
O. O. Gregory.....Clearmont, Mo.
A. C. Moore.....Joplin, Mo.
Republic Garage (addition)....Republic, Mo.
Wm. McKeever.....Vienna, Mo.
General Auto Co.....Washington, Mo.
Barker's Garage Co.....Arnett, Okla.
J. Thorp .....Garber, Okla.
C. R. Siron.....Sulphur, Okla.
John H. Mitchell.....Tulsa, Okla.
A. L. Burk.....Coleman, Tex.
Keith & Hudson.....Granbury, Tex.

SOUTH

New Truck Dealers

Drennen Motor Car Co., Birmingham, Ala. Armleder.
Mobile Auto Co., Mobile, Ala. Duplex.
Piedmont Auto Co., Piedmont, Ala. Federal.
Thompson Motor Co., Atlanta, Ga. Diamond T.
Woodruff Machine Mfg. Co., Atlanta, Ga. Traffic.
Brown & Berrie, Brunswick, Ga. Federal.
R. C. Hogan & Brother, Macon, Ga. Armleder.
Lyon-Day Motor Truck Co., Lexington, Ky. Rainier.
Kilgore & Stilz, Louisville, Ky. Stegeman.
Monroe Hardware Co., Monroe, La. Federal.
Wray Dickinson Co., Shreveport, La. Diamond T.
Mississippi Auto Co., Tupelo, Miss. Traffic.
Lumberton Motor Car Co., Lumberton, N. C. Federal.
Pender Hardware Co., Taroboro, N. C. Federal.
Sotille Cadillac Co., Charleston, S. C. Federal.
Memphis Motor Car Co., Memphis, Tenn. Armleder.
Hunt Motor Co., Chatham, Va. Traffic.
Taggart Valley Motor Co., Elkins, Va. Federal.
Hancock Motor Car Co., Lynchburg, Va. Atterbury.
Mathews Storage Co., Charleston, W. Va. Federal.

NORTHWEST

Ralph Juhl, Brayton, Iowa, has sold his garage to B. A. Gross.

J. W. Flynn, Wheatland, Iowa, has purchased the Holt & Heuer Garage.

New Garages

Clergy Auto Co.....Des Moines
Werheim-Bundy-Johnson Garage,
Eagle Grove, Iowa
Great White Way Garage,
517 E. Second St., Muscatine, Iowa

New Truck Dealers

The Truck Service Co., Cedar Rapids, Iowa. Federal.
Hudson-Jones Automobile Co., Des Moines. Diamond T.
Motor Sales Co., Des Moines. Traffic.
Kaufman-Piper Co., Omaha. Traffic.
Western Motor Car Co., Omaha. Diamond T.
Carroll Truck & Auto Co., Sioux City, Iowa. Traffic.
Carroll Truck & Auto Co., Sioux City, Iowa. Federal.
Nebraska Federal Truck Co., Lincoln, Neb. Federal.
Waterloo Boy Tractor Co., Sidney, Neb. Traffic.
Hahn-Jonas Motor Co., Sioux Falls, S. D. Traffic.
Traffic Truck Co., Ardmore, Okla. Traffic.
Heth Motor Car Co., Ardmore, Okla. Federal.
C. H. McCready, Bartlesville, Okla. Traffic.
Norris Motor Car Co., Enid, Okla. Federal.
Charles W. Dudley, Oklahoma City. Traffic.
Austin Motor Sales Co., Austin, Tex. Traffic.
Wilbur F. Wilson, Austin, Tex. Traffic.
Brown Harwood, Fort Worth, Tex. Traffic.
F. E. Murrell, Henrietta, Tex. Federal.
Thompson & Percies, Richardson, Tex. Federal.
E. H. Clarr, Thurber, Tex. Federal.
Will Moore Hardware Co., Waxahachie, Tex. Federal.

FOREIGN

New Truck Dealers

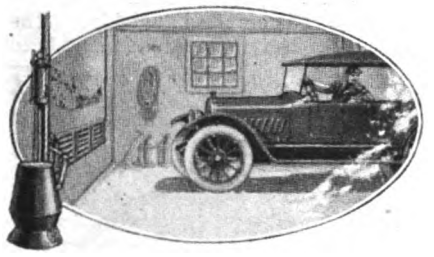
Takamine Laboratories, Tokio, Japan. Rainier.
Cia Automotriz Mexicana, Mexico City. Traffic.
H. Parker Wood, Cape Town, South Africa, Rainier.

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Accessories

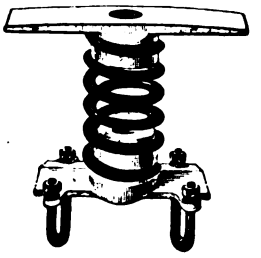
WASCO GARAGE HEATING SYSTEM

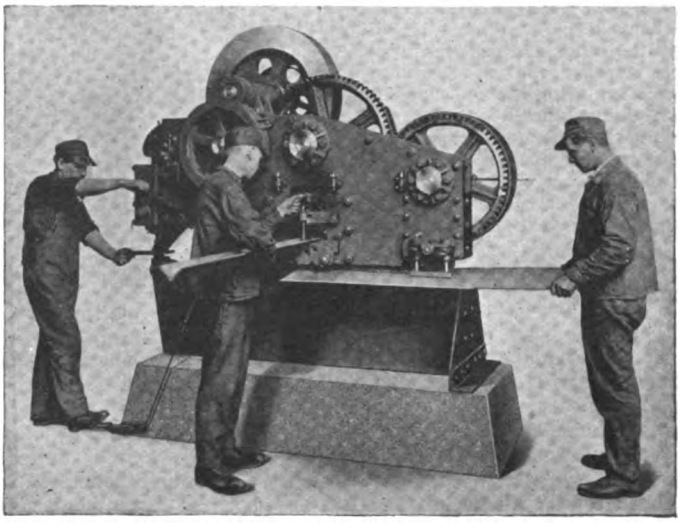
A hot-water garage heating outfit which includes a coal heater with automatic regulator, a radiator measuring 1 ft. 1 in. x 7 ft. 3 in. for each car that is stored in the garage, and all necessary piping and connections cut and threaded to fit. The same heater is used no matter what the size of the outfit, and any number of radiators can be used, up to ten. Complete lengths of the systems range from 9 ft. 9 in. for a one-car system to 82 ft. 3 in. for a ten-car system. The automatic regulator regulates the temperature by the expansion and contraction of water in the bottom of the expansion tank. Prices are: One-car system, $65; two-car, $84; three-car, $105; four-car, $126; five-car, $140; six-car, $161; seven-car, $182; eight-car, $203; nine-car, $224; ten-car, $245.—W. A. Schleft Mfg. Co., Inc., Syracuse.

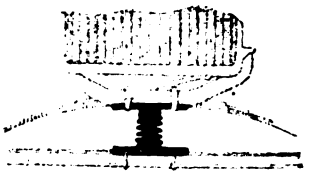


PLUNKETT SHOCK ABSORBER FOR FORDS

This coil-spring shock absorber for the front spring of a Ford car consists of an upper and lower plate, each plate having an extending boss with exterior spiral grooves which hold the coil spring. The boss of the upper plate has a bore into which the nut and king bolt of the spring set. It is held by the spring clips. The lower plate is attached to the axle with U-bolts. Price, $6.50.—William H. Plunkett, 36-40 Brooklyn Avenue, Brooklyn, N. Y.

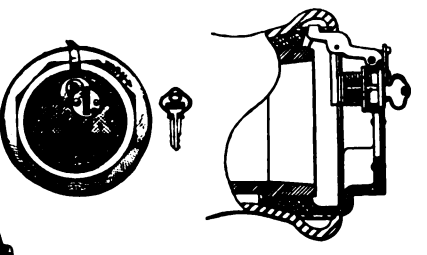


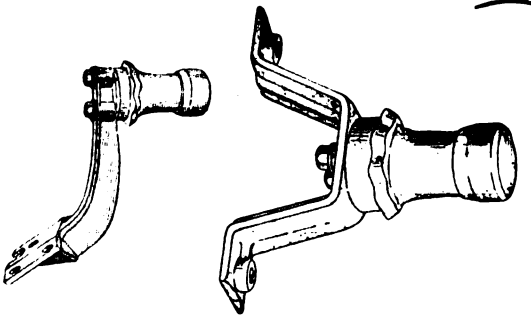


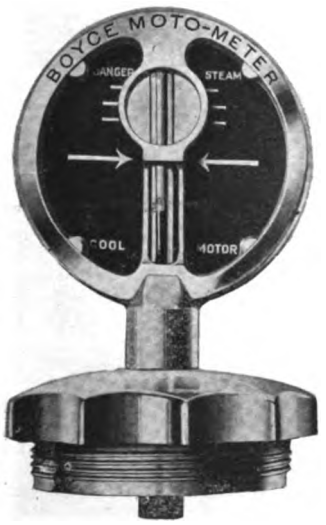


UNIVERSAL SLITTING SHEAR, PUNCH AND BAR CUTTER

A combination slitting shear, punch and bar cutter, built of steel plate instead of the usual iron castings, reducing weight without sacrificing strength. The machine will slit plates of any width or length, will punch sheets, channels, I-beams, or other sections, cut angles and tees, either square or mitered, and by inserting special knives will cut channels, beams, and other rolled sections. The machine is operated either by foot treadle or hand lever, and the three sets of knives can be operated independently or at one time. The capacity of the machine is as follows: Shear, plates ⅝ in. thick, flats 3 x ¼ in., T-iron 3½ x ⅜ in., round 1½ in., square 1¼ in., I-beams 6 in. x 12½ lb., channels 6 in. x 10½ lb.,; punch, 1-in. hole in ⅝-in. plate. The machine requires 5 hp., and the high-speed shaft runs 350 r.p.m.—Buffalo Forge Co., Buffalo.







BOYCE MOTO-METER FOR FORDS

A Moto-Meter for Fords, made especially to fit the car, and complete with a nickeled radiator cap. It registers the temperature of the air and steam above the level of the water in the radiator and indicates by means of a visible thermometer whether the engine is overheating, running normally, or running too cool. Price, $2.75.—Moto-Meter Co., Long Island City, N. Y.

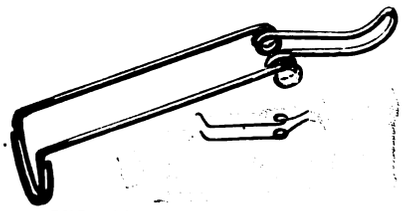
HOUK THIEFPROOF HUB CAP

This is a special hub cap, which locks a Houk spare wheel to the carrier dummy hub. Each lock has a special key, and the cap cannot be removed without releasing the latch with the key and using the Houk wire-wheel wrench, which presses down the latch and unlocks the hub. Prices: No. 3, $5.50; No. 4, $6; No. 5, $7; No. 6, $8. The numbers of the caps correspond to the numbers of the wheels.—Wire Wheel Corp. of America, Buffalo.

CARRIERS FOR HOUSE WHEELS

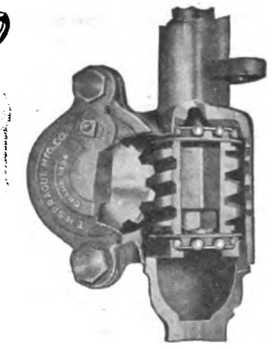
Spare-wheel carriers for House quick-change wire wheels are made for all Ford models. They are malleable iron, enameled black, and include a bracket, a dummy hub attached with bolts, and a malleable-iron, nickel-plated hub cap. The carrier for the touring car or sedan is bolted to the rear spring clip, the carrier for the roadster being fastened to the body with bolts which are furnished. Touring-car and sedan carriers sell for $10, roadster carriers for $9.—Wire Wheel Corp. of America, Buffalo.

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FERNALD STEER-AID

A device fashioned of tempered steel wire, that is slipped in back of the steering knuckle and the other end snapped over the steering rod to eliminate rattle and bring the wheels back to a straight position. Used on Fords and other light cars. One pair used to the car. Finished in black japan, and packed one dozen pair in a carton.—Fernald Mfg. Co., North East, Pa.

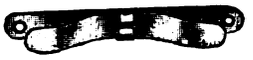


SPRAGUE WORM GEAR FOR FORDS

A worm steering gear for Fords, which consists of a worm wheel keyed to the bottom of the steering column and mounted on ball bearings, this worm engaging a worm wheel which operates the steering arm. The gear reduction by pinions regularly on the Ford is rendered inoperative by removing the pinions and driving a spider over the gear and pinion shafts. The gear case which houses the worm and worm wheel is attached to the crankcase under the heads of the cap screws and bolts, no machine work or drilling of holes being necessary. A drag link with spring sprockets is supplied with the outfit, which is complete with all necessary bolts and nuts. Price, $15 retail, $12 to dealers, and $9.50 to jobbers.—E. H. Sprague Mfg. Co., Twentieth & Harney Streets, Omaha.

FERNALD DOOR ANTI-RATTLER

A spring device to prevent rattle in car doors. The base, which is screwed into the door jamb, is of heavier metal, and a clamp around the middle holds the spring. The spring forces the door over against the opposite jamb.—Fernald Mfg. Co., North East, Pa.



RAIN-A-WAY WIND-SHIELD PAD

A felt pad treated with a solution, the pad being rubbed over the wind shield to prevent the accumulation of rain drops. Price, 25 cents.—Badger Mfg. Corp., Milwaukee.

Four New Stewart Products

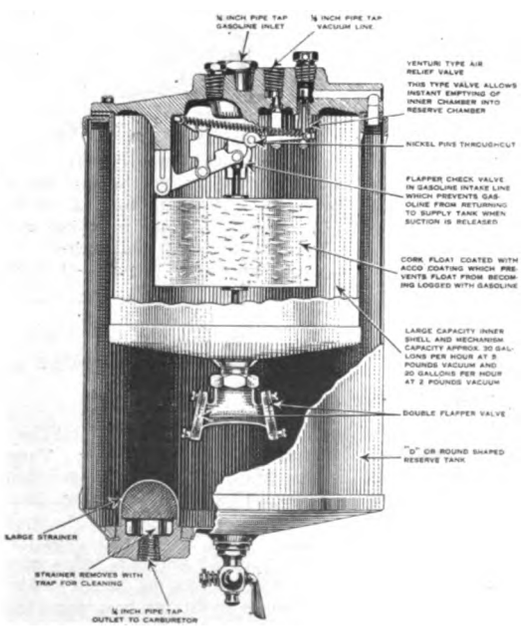
The Stewart-Warner Speedometer Corp., Chicago, has brought out four new products, a truck speedometer, speedometer and instrument board for Fords, a hub odometer for Fords and an industrial vacuum tank for heavy duty work.

The Stewart Model 131-M truck speedometer was designed for government use to withstand severe jolts and vibrations on army trucks. The speedometer is enclosed in an aluminum shell and the face of the instrument is set at an angle which makes the figures easy to read from the driver's seat. It has a 30-mile capacity rotating speed dial, 100,000-mile season and 100-mile trip register with a reset knob set parallel to the face of the instrument. It is attached to the dash by four wood screws. The price is $35.

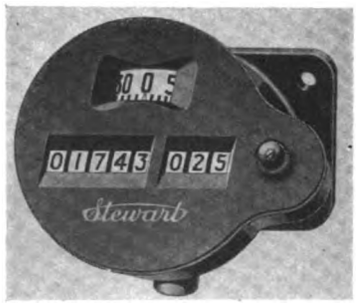
The De Luxe speedometer and instrument board for open Fords has a 3-in. dial face, 100,000-mile season and 100-mile trip register with reset device. The reset knob is at the side and parallel to the face of the instrument. This model has an offset odometer in which the dial is sunk and beveled around the odometer. The figures appear at an angle, which makes them easy to read without tipping the instrument. The board is finished in black, the speedometer has a nickel flange and no bend is necessary at the top of the shaft. It sells for $20.

The hub odometer for Fords is installed by removing the regular hub cap, putting on the odometer and placing the new hub cap over it, the flanges being secured under three of the Ford wheel flange bolts. The odometer is enclosed and hermetically sealed in a case, making it oil, dust, mud and moisture proof. It registers to 100,000 miles, forward and backward movement and repeats. The mileage cannot be changed without removing the hub cap and a flange is provided by which the hub may be wired and sealed. The price is $12.

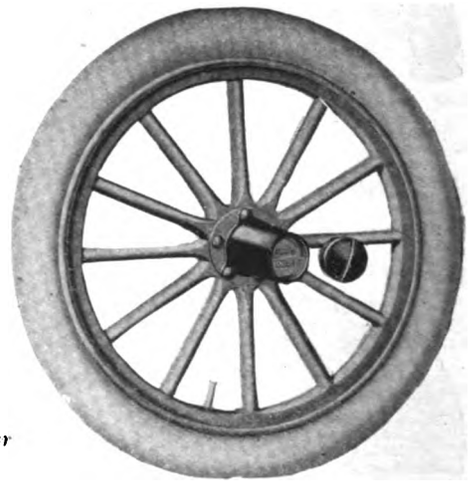
The vacuum system especially for use on heavy duty engines, trucks, tractors and stationary engines has a greatly increased capacity and accelerates the flow of gasoline. It is made in two sizes, one with a round shell of 3¾ pints capacity and one with D-shaped shell of 5 pints capacity. A flapper check valve in the gasoline line at the top of the tank prevents the gasoline from receding when the suction is released, thus keeping the gasoline line always full. The air vent is of venturi type and the inner chamber has a double flapper valve, allowing the chamber to be emptied quickly. The float is cork, heavily coated with Acco coating. There is a removable strainer in the gasoline outlet. A pet cock at the bottom will draw off water or gasoline for priming or cleaning.



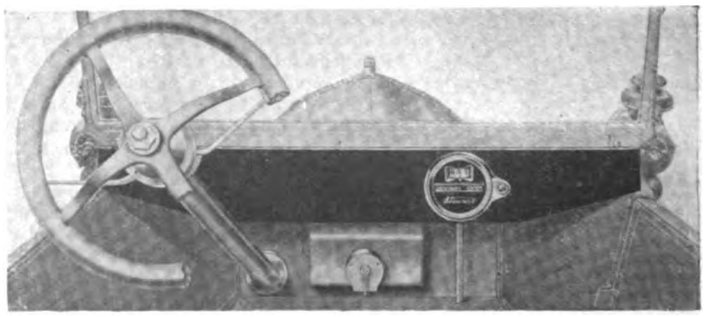
Industrial Vacuum System



Model 131-M Truck Speedometer

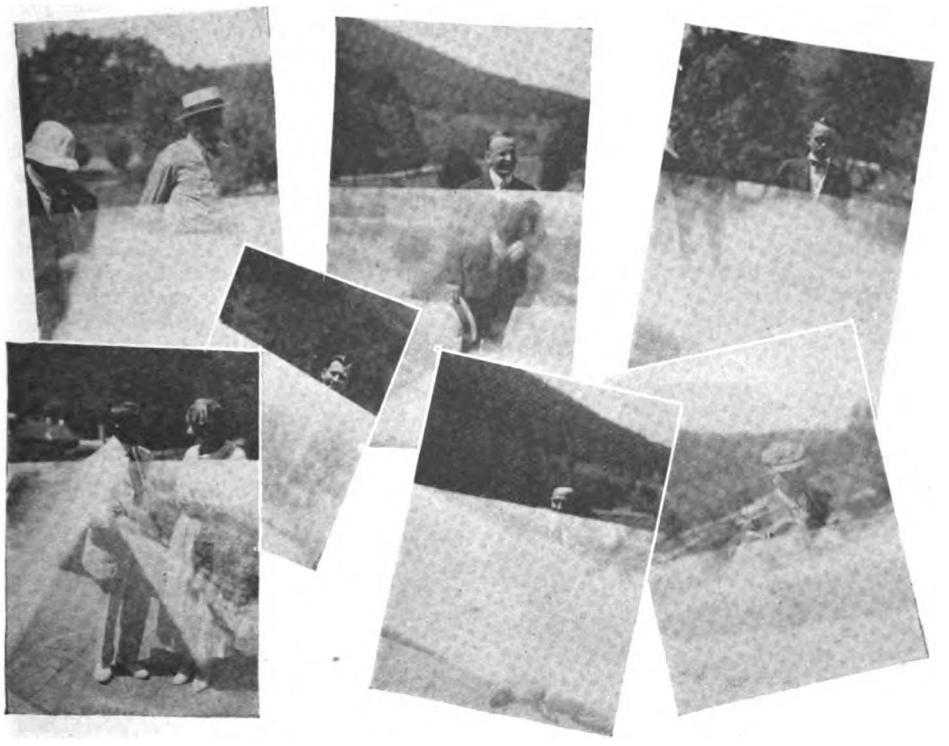


Hub Odometer for Fords



Speedometer and Instrument Board for Fords

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The camera went bad for a few minutes—got hot, or something. That's why your picture isn't all we hoped it would be. But anyhow—here they are!

NEW MEMBERS

Jobbers

S. Smith & Sons, Ltd., London, England
Archer & Wiggins Co., Portland, Ore.
Child, Day & Churchill, Inc., Spokane
L. Frank Saddlery Co., San Antonio
Hans Johnsen, Dallas
McCauley-Ward Motor Supply Co., Waco
Motor Accessory & Tire Co., Pueblo, Col.
James S. Remick Co., Inc., Sacramento
Salt Lake Hardware Co., Salt Lake City
Whiton Hardware Co., Seattle

Manufacturers

Wire Wheel Corp. of America, New York
Lane Brothers Co., Poughkeepsie, N. Y.
Edison Lamp Works of the General Electric Co., Harrison, N. J.
Howe Mfg. Co., Chicago
Kelsey Wheel Co., Ltd., Windsor, Ont.
Krom-Nik Gear Co., Chicago
Luthy Hydrometer Co., Detroit
Motor Products Corp., Ltd., Walkerville, Ont.
Russell Mfg. Co., Middletown, Conn.
S. & M. Lamp Co., Los Angeles
Bonney Vise & Tool Works, Allentown, Pa.
Liberty Accessories Corp., St. Louis
Mutual Wheel Co., Moline, Ill.
National Spring Co., New Castle, Ind.
Pyrene Mfg. Co., New York
Racine Rubber Co., Racine, Wis.
Dayton Wire Wheel Co., Dayton
U. S. Auto Bumper Co., Chicago
Osgood Lens & Supply Co., Chicago

Jobber's Convention

(*Continued from page* 7)

Finances are in excellent condition. There are total assets of $41,616.84, of which $35,000 is invested in bonds, including $14,000 of Liberty's.

All Members Equal

It is not unlikely that at the fall convention the manufacturing members will be placed on the same basis as jobbing members, and will be known as regular members instead of associate members, as at present.

Under the present arrangement jobbers pay whatever assessment is necessary for the running of the association while manufacturers generally pay only a fixed sum, about half that of the jobbers. When conventions are held the delegates of jobbing members receive their expenses and are paid $5 per half day session for sitting through each complete session. The manufacturers receive no expenses.

Figures submitted by the commissioner disclosed that from the first of the year until May 1 manufacturing members have paid in $18,600, whereas jobbing members after their expenses had been rebated to them had paid in $19,273.29. On a dues basis the membership is about equal, but it nevertheless was considered best by the majority that the manufacturers be placed on the same basis as the jobbers. This would result in more manufacturers being present when the roll is called each time and the attendance would be larger. As it is now, the jobbers hurry to get into the meeting before the doors are closed for roll call, while the manufacturing members take their time for coming in because they have no incentive such as the $5 bonus to get them in on time. This change, and also the changing of the association's name, cannot be made without an amendment. It will be voted on in October. A straw vote showed that a decided majority is in favor of a change.

At the French Lick convention the association voted an assessment of $100 a member to defray the expenses of the Sherman Law Prosecution which was started nearly a year ago and which has yet to come to trial. Four members failed to pay the 50 per cent of the authorized assessment that has thus far been asked and have been suspended. They are: Atlas Auto Supply Co., Chicago; Asbestos & Rubber Works of New Jersey, Camden, N. J.; American Hardware Corp., Corbin Screw Division, Hartford, Conn.; U. S. Light & Heat Corp., Niagara Falls, N. Y.

Wholesale Only?

What may prove a rather important point, if it comes up at the October meeting, is the suggestion made in the present convention that any jobber who is applying for membership must be exclusively wholesale. The amendment would not be retroactive and would not compel the elimination of the retail departments operated by present members. There are those, however, who believe the jobbing trade is moving toward an exclusively wholesale business, a number having already discontinued their retail departments.

Rising Cost of Business

Monday afternoon the jobbers went into the question of the rising cost of doing business. This was taken up at a session of the jobbers alone at a time when the manufacturers were holding a separate meeting. One of the questions raised was the manner of handling the sales expense of the automobiles that are used by jobbers' salesmen.

Clarke G. Powell, Omaha, owns his cars and requires the men to send in the day's expenses each night. An account is kept for each car. He does not allow a flat sum for car expense because it might tend to encourage the men to eliminate some of their side trips in order to cut expenses. A disadvantage is that salesmen are permitted to have the cars overhauled on the road, and when the company is paying all the bills there is a temptation not to keep these economical. Churchill, Electric Appliance Co., New Orleans, said he found it did not pay to travel men unless they were going further than a radius of 100 miles. He said the men should own their cars and have allowance for upkeep.

Fred Campbell, St. Louis, put three men out in cars a year ago, the company owning the cars. The cars went to pieces in a short time and were laid up much of the time. While the cars enabled the men to make the smaller towns the arrangement, he considered, was not entirely satisfactory. Since then two men have been operating in their own cars for which Campbell pays expenses and reasonable depreciation.

There is some question as to whether it is possible to put expenses on a mileage basis. Campbell is trying cars out at $4.50 a day, although this arrangement is experimental.

Dean of the Tisch Auto Supply Co., Grand Rapids, this year sold the cars to the men and allows them $30 a week for car upkeep alone. The sum first allowed was $35, but the men said this was $5

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too much, so it was reduced. Thirty dollars a week is allowed for hotel expenses and the men are paid on commission. Settlement is made every six months.

How Hess Does It

Hess of the Equipment Co., Kansas City, used to buy Fords, Buicks and Oldsmobiles and the men sent in expenses. Jan. 1 the cars were sold to the men at $25 a month. A flat sum is allowed for expenses. For expenses three men got $150, two $135 and others $140; with the exception of two men, they are all on salary basis. Last year the expense allowance was $125, but this year it was necessary to make it greater.

W. W. Low, Electric Appliance Co., Chicago, said the Ford is the only car for salesmen. He has found that a car will last about 27 months, after which it can be turned in plus $125 or $150 for a new car. The men buy the cars. Low finances their purchase at $25 to $50 a month and the company stands the depreciation, unless it is due to careless handling. If a man buys any other car than a Ford, his car expense allowances are made on the Ford basis, he being allowed $10 a month for gas and oil.

Suter, Milwaukee, put in a good word for the salesmen, saying they are honorable men, although sometimes not so regarded by an employer. He uses eight cars, of which he owns two; the others belong to the men. No record is kept of their expenses, the men are simply required to turn in business at a certain percentage of cost, and if they can't be profitable salesmen they are not retained. No attention whatever is paid to their expenses.

Dine's Arrangement

H. M. Dine, Dine-DeWees Co., Canton, Ohio, pays the men on a percentage of profit basis. This encourages the men to sell the more profitable lines. The men are paid 25 per cent of the gross profit under a tentative arrangement, with settlements made twice a year. On this basis the men are drawing very good salaries and are bringing in good business.

Elyea of Atlanta pays a salary and a sliding scale on sales. The company owns the cars and rents them to the salesmen at a rate which covers the depreciation.

Charles E. Justus,, Justus & Parker, Columbus, pays the men a percentage of the profit and not a percentage of the gross business. The men get a drawing account of $225 to $275 a month and 25 per cent of the gross. In April this figured as 6¼ per cent sales expense.

H. M. Dine said he also gave the men all orders that came in from their territory no matter how the orders were sent in, his idea being to give each man the full benefit of all the sales and promotion work he had done. A larger commission is given on business from distant territories because the mail and telegraphic orders will be fewer. Returned merchandise is deducted at the end of the month, as are lost accounts. The man loses his commission only and not the entire amount of the loss.

There was a debate as to whether salesmen should carry both the cost and the selling price. Suter said his salesmen had been with the house for from 19 to 37 years, and that each man can figure up at the end of each day what he earns, because he carries the cost and sales figures. One month one man made $847.

Hess said that 6 per cent on the gross is equal to 20 per cent of the profit. It was voted that the association compile data on this subject.

Ex-President Charles E. Faeth said that he paid on the volume of business



BRUNNER GOLF TROPHY

Presented for convention competition by George L. Brunner of the Brunner Mfg. Co., Utica, N. Y. It was won last fall, the first time, at French Lick, by Harold M. Cooper, Marshalltown, Iowa. It was won at Hot Springs by W. W. Low, Electric Appliance Co., Chicago, who won a tie against Jack Stiles, Liberty Accessories Corp., St. Louis, and Edward Pegau, Western Automobile Supply Co., Omaha. It must be won three times for permanent possession. It is sterling silver and is a combination fruit bowl and vase 18 in. high and 16 in. across and lies in a mahogany case

and that it was unfair to give cost figures to the salesmen. The men are paid a salary and expenses and at the end of the year are given an extra bonus, which makes their total sales expense equal about 7 per cent. Twenty to twenty-five men operate in cars which they own themselves. Higher commissions are allowed in difficult territories. The use of cars brings in increased business. One member said there is little loss in turning in used Fords because they are at a premium in that part of Texas where he operates.

Slow or Quick Goods

A rather involved discussion followed the question whether jobbers should handle long profit slow goods or short profit quick goods. After a protracted session on this subject most of them seemed to be in favor of the quick moving goods although there was no definite conclusion.

On moving slow stocks the consensus of opinion was that jobbers should give their competitors a chance to take the goods off their hands before cutting prices or using any other force methods to move over stocks. This plan is used in Canada and other sections. Some jobbers give salesmen an extra 5 per cent on hard stocks.

The members seemed to agree that it does not hurt a competitor to cut prices on a stock that is not selling.

A small package shipment is one of the problems in rising costs because the profit on the package sometimes does not cover the cost. President Beach adds 10 cents for service and guarantee of delivery on orders under $10 and over that amount charges 5 cents for guarantee of delivery. Clarke Powell suggested that this matter be taken up in the association's advertising in Motor World.

There was some doubt as to how jobbers are going to take care of their catalog prices because of the increases in cost that are rapidly being made through railroad rates, passenger fares and other things. Several of the members said they were issuing letters and bulletins giving corrections in prices, and that this was the only way it could be handled.

Buyer the Price Man

In figuring how to decrease the expenses and increase the profits Clarke Powell said he had turned the pricing of all orders over to his buyer and that prices have been raised 5 to 20 per cent, notification being made through a form letter. McCullough of Philadelphia is issuing a monthly price bulletin giving changes.

President Beach, Chicago, is sending letters to his salesmen on the same subject. He also is now adding 50 per cent gross profit instead of 33 in order to provide a sure margin.

When railroad rates were raised 15 per cent in Canada, J. Ernest Millen added 2½ per cent to his prices. Revisions are made daily.

Hess, Kansas City, is now adding 5 per cent extra.

MacWilliam, Hyslop Brothers, Toronto, endeavors to have a minimum gross profit of 33 1/3 per cent. It was stated by the jobbers that there are several lines with advertised prices on which raises cannot be made, and the suggestion was made that it might be advisable, temporarily at least, for all manufacturers making prices on their goods because this makes it difficult to handle necessary increases.

Trade Acceptances

The trade acceptance once more came up for consideration, and it was urged that more make use of it. Some are using it quite generally, others are using it on slow accounts and some claim they have difficulty using it at all.

It was reported that the Federal Reserve Bank in Dallas has issued an order against the financial paper of jobbers on the ground that they are engaged in a non-essential business. The board of directors was instructed by the convention to investigate this matter thoroughly and ascertain the true situation and its causes.

As to collection fees on trade acceptances, some said 10 cents a hundred and

(*Continued on page* 38)

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Engineers See Wonderful Liberty Plane Demonstration

French Aces Put American Machines Through Their Paces for S.A.E. Members—1200 Attend Dinner

DAYTON, June 17—The twelve hundred persons who attended the Orville-Wright dinner in connection with the summer meeting of the Society Automotive Engineers to-night heard the greatest after-dinner speeches ever heard at an S. A. E. meeting. The dinner was the greatest compliment that could have been paid to Orville Wright and when he rose to acknowledge the honor the applause was more vociferous and prolonged than any ever accorded any other member of the society. It resembled that given at a national political convention.

The dinner was a classic in airplane history and developed into one continuous round of applause for the Liberty engine, the De Haviland battleplane with its four machine guns and the general air program that has been carried out and is being pushed ahead.

The twelve hundred diners were in fine fettle for the meeting having passed the entire day looking at the Liberty engine and all of its parts in the pavilion where the meeting is being held. Not only had the members examined the engine and all of its parts as well as the De Haviland plane and all of its parts but just before dinner they witnessed the greatest exhibition of war flying ever seen in America when ten of the greatest flyers demonstrated specially for the members over triangle park.

French Aces in Exhibition

Two or three flyers, aces in the French army, took part. The flying convinced everybody that the Liberty is the greatest flying engine and those who looked at it along with nine other war engines exhibited from England, France and Germany were convinced that it is a better production job than any of the others, and its behavior shows that it produces more horsepower with less weight than any of the others.

The speakers table was lined with notables. Ranged on either side of President Kettering who acted as toastmaster. The list included General Wm. C. Kenly, the newly appointed head of aircraft training operations in this country; Howard E. Coffin, Col. E. A. Deeds, F. G. Diffin, Orville Wright; the guests of the dinner, C. M. Manly, Lieutenant Miozzi, representing Italy; Col. J. G. Vincent and S. S. Bradley of the Manufacturers Aircraft Association; Director Stratton of the Bureau of Standards.

The dinner brought out a wonderful fund of information. Our training planes are flying 220,000 miles per day. Our standardized De Haviland battleplanes with Liberty engines are so standardized that recently when one shipment arrived in France the fuselage was taken out of one crate and the wings out of another and in less than 2 hours from arrival at the flying field the plane was assembled and flying. The wings would serve for any fuselage. General Pershing was so pleased with the matter that he cabled his congratulations to Washington.

What Germany Plans

Germany is preparing to win the war with airplanes and is working to produce tens of thousands of planes and we must work for greater production. France and England have practically reached their maximum in airplane production and we must take up their load. Douglas Fir is now as good as spruce for airplanes and so there is no wood shortage. We have developed a fabric for covering the wings, from Sea Island cotton which is as good as Irish linen and so the shortage of linen is no handicap.

General Kenly was introduced by the toastmaster as one of the human being in charge of aircraft matters who had witnessed the early flights of the Wrights 10 years ago and who has followed the development of our aircraft work ever since.

General Kenly paid his best respects to Orville Wright and it was in appreciation of the work of the Wright Brothers that he attended the meeting.

True to war department ethics, General Kenly obeyed the instructions of not saying anything on any subject relating to aviation. He told of the impression the De Haviland battleplanes with Liberty engines made on the naval flying field on Long Island where previous to the arrival of the Liberty engines the flyers had been using slow boats. The coming of the Liberty engines put a new thought in Navy aerial work into all of the students. Its great power shooting the planes up into the elements, as the boys tried its speedy climbing qualities.

Lieutenant-Colonel Jesse G. Vincent answered the eternal question of "how fast is the Liberty engine" by drawing a comparison from the automobile field. The case is the same as that of an engine that can be used in a racing car that will travel 105 m.p.h. and putting the same engine in a truck and gearing it down so that it will travel not over 15 m.p.h.

If you put the Liberty engine in a light plane it has speed up to and over 135 m.p.h. but if you put it in a heavy day or night bombing plane, and perhaps use two of the engines, its speed will not be over 90 or 100 m.p.h., but it will carry great loads and travel long distances with them.

Colonel Vincent gave a clear outline of the work of the four flying fields in the city of Dayton. The first or Wilbur Wright Field is strictly a training field for cadets as well as specializing on machine gun courses with three different types of machine guns.

The McCook Field is the Government Experimental Station and is under the direction of Colonel Vincent and Major Howard Marmon. This is the National Headquarters for testing aviation work and where the standardizing of all kinds of apparatus is carried out so that production on a large scale is possible. McCook Field is equipped specially for research and standardization work.

The object of those in charge of McCook is to foster experimental work throughout the country and to take designs and standardize them so as to work for the best interests of the nation.

The general plan at McCook Field is to standardize one design after another and to alter design as necessary in order to get them suitable for the fastest production.

The third field is known as the South Field and is a privately owned one in which the experimental work of the Dayton-Wright Company is carried on.

Germany Not Weakening

F. G. Diffin, who was one of the society's delegates to the International Airplane Congress in London last January and February, is of the firm opinion that as a nation we underestimate the fighting strength of Germany and that so long as the Kaiser has 6,000,000 fighting men there is no thought of any internal revolution in Germany and that we have a long and hard fight ahead of us.

Diffin is a firm believer in producing airplanes in such great quantities that we will outnumber the Huns, who are now preparing to build planes in tens of thousands. It is foolish to think of Germany as in a state of exhaustion. The strength of Germany impressed Diffin more than anything else in his visit. Germany appreciated years before the war started that the war in the air would be the determining factor and she accordingly prepared.

To-day England and France have

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reached the maximum of their airplane production or nearly so and America must take their places. The side that puts the greatest number of planes up will win. On land the best that can be looked for in the war is perhaps a deadlock. It is a long way to Berlin. Our people must be better educated to air planes. A great wave of education over the world is necessary. The biggest part of our people do not know the airplane and look upon it as an entertaining feature at a country fair.

Diffin was amazingly impressed with the whole-hearted hospitality that the mission received in England where it visited all of the factories and was shown everything that the Britishers had to show. There was no holding back of information or secrets but everything was made available.

Dr. Stratton, director of the Bureau of Standards in Washington, declared that the Society of Automotive Engineers had done more than any other engineering society in war work and he knew of no other society in which the members worked so well together.

After following the aircraft program from its development he thought the proper program had been followed by selecting one or two designs and building them in large quantities. He thought that those who had the aircraft matter in charge went to the correct people at the start and it was fortunate that the automobile industry was called on to do the work. It was fine to pick out the industry that could do the work and then stick to its program.

To have adopted every design that came along last year would have been criminal and to-day the nation should be glad that we selected a few designs and have stuck to them. England said that no aviation engine could be put into production under a year, but we put the Liberty engine into production in 8 months.

Director Stratton regretted the fact that Congress is so ignorant of our aircraft achievements but passed the blame on to the people by declaring that the people elected Congress and if the right men were not there to-day the people should see that they are not elected again. Congress does not know what is going on in our factories to-day and it should go to these factories and see and then it would not pay so much attention to rumors and the falsehoods that are flooding the land. The society members know the truth and they should tell it to everybody.

Jobbers Convention

(*Continued from page* 36)

others a minimum of 25 cents, the same as on drafts. It was suggested that an effort be made to secure a standardized practice on this point among banks, some of which are said to be charging all the traffic will bear.

Charles E. Justus sent out 75 trade acceptances as a trial and 30 were returned filled out. All of which were paid on time. That there is a great need for educational work regarding the acceptance is indicated by the statement of one jobber that one of his customers signed and returned the acceptance and sent with it a check for the face of the paper.

Emil Grossman classifies his customers in two divisions. Those who pay on a basis of 2 per cent in ten days are in class one and all others receive trade acceptances.

Vesper on the Job

One of the features of the convention was an address by President F. W. A. Vesper of the National Automobile Dealers' Association, who told of the size of the automotive business, and impressed upon the delegates the pride they were entitled to hold in their trade. Vesper urged constructive work, the elimination of waste and the need for war service work such as has been done by the National Automobile Dealers' Association.

The state vice-presidents who have charge of dealer organization work reported progress in quite a number of states. Alabama has a convention in Mobile July 8 to 16, to which jobbers are invited. Florida is geographically divided into three sections and has trouble organizing. Montana has promoted the Midland Empire Automobile Trades Association and held a meeting March 15. Texas held a dealers' meeting at San Antonio recently. Colorado is assisting the Rocky Mountain Automobile Trades Association. There is a possibility of organization in Michigan. Ohio is doing well. Missouri is quite active and is to have a meeting in July. In New Jersey the state association has recently undertaken a campaign of activity. California has a strong association with 2500 members. Others active are Washington and Canada.

As war service work some of the Ohio dealers and jobbers are teaching men to be mechanics so that they may serve in the army. It takes 60 days to teach a man. It is expected 1000 mechanics will be turned out by Jan. 1.

It was resolved that the jobbers' association endeavor to get the headlight law in various states enforced. When the laws were enacted large stocks of lenses were purchased and the goods moved slowly because the laws have not been enforced.

In order to get a maximum attendance at the sessions it was proposed that an amendment be introduced depriving a delegate of his railroad fare in case he does not attend all the sessions.

W. W. Low said his salaries had increased 20 per cent. John Shuford, St. Louis, said six months ago the overhead was 22.4 per cent, and that while business has increased 33 1/3 per cent the overhead has gone up to 26.5. His average gross profit is figured at 30 per cent.

Former President Sidney B. Dean of Nicols, Dean & Gregg, St. Paul, was present in his uniform of an army lieutenant. He is in the purchasing department of the Signal Corps at Washington.

Hanging on the walls of the convention room were the service flags of the jobbers' association of 14,876 stars and of the Canadian auxiliary of the association with 1254 stars.

A standing committee, known as the legislative committee. was appointed Thursday. The committee consists of Messrs. Faeth, Norris, Strannanhan, Lester, Dean and Commissioner Webster. They are particularly instructed to cooperate with the United States Chamber of Commerce in working to effect a repeal of the Sherman law. However, while this is a special assignment it is nevertheless a fact that the committee is to be a regular and standing committee.

Two nice souvenirs were given. Robert Dunlop of the Shaler company arrived Tuesday with a trunkful of fine canes—which went fast. The Splitdorf company gave decks of gilt-edged playing cards.

The convention was the longest ever held by the association. It began Wednesday, June 5, with committee meetings. The general sessions opened Monday, June 10. The sessions were originally scheduled to end Wednesday, June 12, but were extended two days, to the 14th. However, the business was ended easily by Thursday and the convention adjourned Thursday at noon with the auctioning of the $10,255.50 socks and the singing of "America."

Newerf To Distribute J. & D. Tires On Pacific Coast

NEW YORK, June 18—W. D. Newerf, a pioneer tire man of the Pacific coast and head of The W. D. Newerf Tire Co., Los Angeles, has just concluded arrangements to become Pacific coast distributer for The J. & D. Tire Co., Charlotte, N. C. Newerf will move his headquarters to San Francisco and will distribute J. & D. products throughout all territory west of Colorado, including the Pacific coast states, British Columbia and the Hawaiian Islands.

He was coast distributer for the Goodyear company from 1904 to 1911. From 1911 to 1915 he distributed the Miller Rubber Co.'s tires on the Pacific coast. Since 1915 he has done an extensive tire jobbing business throughout the Pacific territory. Under the new arrangement he will operate under the corporate name of The W. D. Newerf Tire Co.

5,000
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N. A. D. A. on Trail of Rumor Peddlers

Will Make Fake Story Carriers "Prove It or Shut Up!"— War Convention Held

CHICAGO, June 14—Combatting rumors is going to be one of the chief occupations of the National Automobile Dealers' Association, which to-day held a war convention at the LaSalle. A systematic campaign is to be undertaken to down the persistent rumors that dire things are going to happen to the automotive industries almost any day. President F. W. A. Vesper asserted that these rumors have done millions of dollars damage to the dealers.

Linked with this fight against rumors concerning the industry there is concerted opposition to rumors that are adverse to governmental activities. President Vesper told of the success of the much maligned Liberty motor, and suggested that when anyone made a malicious or derogatory remark he be made to "prove it or shut up."

As an example of the foolish rumors that are going around one was cited that there was going to be a tax of 25 cents a gallon on gasoline that was used in automobiles.

Plans were outlined for putting into effect the war conservation measures recommended by the association's War Service Committee, of which President Vesper is chairman. While the intention of the committee was not that all garages should close nights and Sundays, they nevertheless have closed up in some cities in co-operation with the entire trade. In San Antonio no gasoline is sold on Sunday. One or two men are kept around garages to handle the floor and such emergency jobs as can be brought in and handled by one man. In Des Moines the town is closed pretty tight nights and Sundays.

Harry G. Moock, commissioner of the Rocky Mountain Auto Trades Association, said the Federal Tire house there had found that it cost 30 cents a mile to give tire service on the road.

Samuel A. Miles, manager of the New York and Chicago shows, explained to the dealers the method of handling rural express business, and urged that dealers sell trucks to such expressmen and get the service going in their section, as it relieves the railroads of a good deal of short haul work and encouraged the farmers to increase their food production, the rural expresses making it possible for the farmer to get goods to market easily and at a good profit.

The association voted in favor of the imposition of "a just and equal tax upon all motor cars and that we oppose any system or scheme for the taxation of automobiles which is discriminatory.

"Further, be it resolved that the president of the association appoint a committee of five, of which the president shall be ex-officio chairman, to treat with the committee or committees of congress and other governmental authorities having in charge the subject of the taxation of motor cars, and that we empower this committee to act for and on behalf of this association in all matters affecting the interests and rights of automobile dealers."

Further resolutions follow:

"Resolved, That it is the imperative and patriotic duty of every dealer, who has not already done so, to put into execution at once the conservation recommendations of the Commercial Economy Board."

"Resolved, That dealers' association and individual dealers extend the fullest possible co-operation in the establishment of the system and systems of rural express routes as proposed to the association by Mr. Samuel A. Miles.

"Resolved, That a vote of thanks be extended to the Chicago Automobile Trade Association for their sincere hospitality and highly enjoyable entertainment."

The Chicago association was a most popular host. It dined the dealers at the South Shore Country Club Friday evening and saw to it that every visiting dealer got all the golf and baseball he wanted.

Violate War Service Rule

ST. LOUIS, June 17—Two instances of violations of the "war service regulations" have been reported to President Schlecht of the Automobile Manufacturers' & Dealers' Association, and he has sent to the entire membership a letter calling attention to the fact that there were no dissenting votes when this rule was adopted. Also, that there is a power that can enforce these rules. Two car agencies that are not members of the association have been open for the selling and repair of cars since the night closing rule was adopted. Attention of these firms has been called to the fact that the regulations were adopted for a patriotic service and not for selfish interest

Belt Power of Tractors

IN considering the belt power of a tractor as a supplementary source for economical employment on the farm some consideration is necessary as to the locality, the preponderant character of the crops, the amount of belt power required and as to whether the demand for belt power will conflict in time with the demand for draw-bar power. For instance: In the wheat fields of the west the approved time for plowing—whether it be in the winter wheat districts of Kansas or the spring wheat districts of the Dakotas—happens to be just when threshing operations are at their heaviest. In other words, the peak load for both draw bar and belt comes at the same time. This is typical of a variety of combinations and complications which arise in tractor operation and which must be taken into consideration in fitting the tractor to the job.

Probably Will Curtail Coal For Car Industry

Neither Garfield Nor the Administration Have Issued Orders as Yet, However

WASHINGTON, June 17—Although neither Dr. Harry A. Garfield, Fuel Administrator, nor the Fuel Administration have issued definite orders regarding the quantity of coal which is to be allotted to the automobile industry, it is not improbable that a definite program of curtailment will be adopted. It was stated at first that the Fuel Administration had definitely decided to limit the amount of coal allotted to the automobile industry to 25 per cent of the quantity consumed during the 1917-1918 period.

Questioned by a representative of Motor World, Dr. Garfield specifically denied having issued any such order. It seems, however, that he has made a statement to this effect and within the past week he has verified such remarks. Following is the text of the statement which Dr. Garfield has made public:

Fuel Administrator Garfield to-day confirmed the statement he made on Monday in regard to the curtailment of fuel for the manufacture of pleasure automobiles. He stated that the general question of curtailing this industry is now in the hands of the Steel Section of the War Industries Board. The Fuel Administrator, however, feels responsible to limit the amount of fuel used in the manufacture of pleasure automobiles to whatever extent the national situation demands. Fuel Administrator Garfield made it plain even if steel is available for a larger production, he will be compelled to limit the fuel for the manufacture of pleasure automobiles in the season 1918-19 to not over twenty-five per cent of that consumed for this purpose in the season 1917-18.

In his statement Dr. Garfield first places the responsibility for curtailing output with the War Industries Board, which has jurisdiction over steel priorities. He says, in brief, that he believes that there will not be sufficient steel for the war needs of the United States and its Allies as well as to provide for normal or even a slightly curtailed production of motor cars. He continues that even in the event there should be sufficient steel for both war needs and to build passenger cars, he would feel "compelled to limit the fuel to the manufacture of pleasure automobiles in the season of 1918-19 to not over 25 per cent of what they consumed for this purpose in the season of 1917-1918."

Up to the present time no list of industries which are to be given priority in coal deliveries has been made public. However, the fuel administrator has such a list under consideration, and in the meantime has permitted it to become known that coal will be distributed in the following order:

A. Railroads.

B. Army and Navy together with other departments of the Federal Government.

C. State and County departments and institutions.

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D. Public utilities.
E. Retail dealers.
F. Manufacturing plants on War Industries Boards' preference list.
G. Manufacturing plants not on War Industries Board's preference list.

Domestic consumers are not classified but will rank with roads.

The responsibility for the distribution of coal subject to this preferential list will be vested in the State Fuel Administrators.

The War Industries Board, will, in the main, decide which consumers will have preference in securing coal, but the United States Fuel Administration is assisting by request in the compilation of the complete preference lists. Distribution of coal to consumers in the first two classes will be handled from Washington and shipments to vitally important plants not in the first two classes will be supervised by the Government.

The War Industries Board will issue a questionnaire to every manufacturing plant using more than 500 tons annually, which, when compiled, will be the guide for the establishment of preferential lists.

Detroit Regional Munition Commission Begins Survey

DETROIT, June 17—Allan A. Templeton, regional director of the War Indemnities Board, has appointed J. Hubbert Cullen, industrial secretary of the Board of Commerce, and B. F. Emory to assist him in starting the first work called for by the War Industries Board. This work includes a survey of the entire district and the filing of complete information on all industries not now engaged on war work, but capable of conversion, industries partially engaged on war work and industries entirely engaged on this character of work, but whose contracts expire within a short time.

In every county in the State branch organizations will be established that will work whenever possible through the local chambers of commerce. All preliminary information will be obtained through them. Cullen has been working along this line for some time and is thoroughly familiar with the industrial situation. He has already lined up the industries of Detroit so the local commission will confine its time largely in rushing the State work to completion and renewing the industrial survey recently made in Detroit.

Eastern Agent For Hayes Wheels

NEW YORK, June 17—Castle & Kyte, general sales agents for the Wire Wheel Division of the Hayes Wheel Co., Detroit, have appointed the Hayes Wire Wheel Sales Corp. metropolitan distributers of the Hayes wire wheel. The new firm will be located at 842 Seventh Avenue. Alan C. McDonnell is president and Harry H. Jonas treasurer. All orders from the metropolitan district for wheels, parts of tools will hereafter be filled direct from the New York showroom, where a complete stock will be kept on hand, thus eliminating delay in awaiting shipments from the Middle West.

Show Managers Say Shows Should Go On

Break in Chain Would Mean Loss to Industry—Miles Says National Shows Are Almost Certain

CHICAGO, June 15—That discontinuing the automobile shows next winter would be injurious to the interests of the automotive trade and the country generally was the opinion of the National Association of Automobile Show Managers which met to-day at the Hotel LaSalle.

The members, representing most of the principal cities in the United States, voted that business must "keep the sign over the door" and that the shows must be held if possible, even though there be no great amount of cars to sell at the time they are held.

It was conceded that conditions may arise that may alter the situation, but, barring any such events, the show circuit of last winter will be continued in about the same order as during previous seasons.

Samuel A. Miles, manager of the New York and Chicago shows, representing the National Automobile Chamber of Commerce, said that the manufacturers were unalterably opposed to closing the New York and Chicago shows. Their attitude is that the shows serve to preserve the good-will that the industry has created for itself, that they bring dealers and manufacturers together, that business conditions are stabilized, that morale is strengthened, and that the interests of the respective territories generally are benefited by the various expositions.

The show managers considered making the dealer shows of next winter more educational and instructive than ever before, following along the lines of the dealer meetings, the first of which was held in Cleveland, others being held in Minneapolis, Kansas City, St. Louis, Boston and other cities.

Indianapolis, for a fall show, is renting three tents where it has used one before. Other associations are signing leases for their buildings. The Twin Cities have had to give up the Overland Building, where their enormous automotive show was held last winter, and are casting about for another structure. Government activities have taken many of the buildings that heretofore have been used for shows. Louisville formerly used an armory but cannot have it now. The majority of the show managers and association officers present expressed as their belief that every effort should be made to find buildings of some kind in case the show managers cannot secure the structures they have used during past years.

It was recognized that in some cases with few cars to sell and with conditions adverse, the shows may be little more than an empty shell, but it was considered very necessary that there be no break in the series of shows else the entire industry will have been given a setback from which it might take years to recover.

It was suggested that the show managers meet again in the fall to plan in detail the constructive educational work that began last year. Many plans were considered last winter, but their success was not apparent until the show season was so far advanced that the ideas could not be put to use in more than a few cities.

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5,000 in 90 Days

School Moves, Abandons Flying Field

DETROIT, June 17—The National Training School has moved its airplane and automobile departments to new quarters at 761 Cass Avenue. The airplane department has abandoned its idea of acquiring a tract of land for flying purposes having been stopped by the government from making this move owing to the fact that the proposed purchase of land is too close to the government flying field. Steps are being taken to establish a flying field near St. Louis. The school has raised the price of its ground course from $50 to $65. A class of thirty-five students was graduated June 1. The majority of the men joined the Royal Flying Corps, others went into the American Corps and a few became employees of the Packard and Fisher Body.

Personnel Changes at King

DETROIT, June 17—Wallace C. Hood has resigned his position as sales manager of the King Motor Car Co. J. B. Siegfried, general manager has opened an office in Washington to co-operate with the Detroit factory. George C. Gurney has gone to California to take the position vacated by I. B. Mears, recently resigned.

Government To Control Labor

WASHINGTON, June 17—Employers of more than 100 workers will have to secure labor through the United States Employment Service of the Department of Labor after July 15, 1918. The employers of less than 100 workers can use the facilities of the United States Employment Service if they desire. The use of outside agencies, advertisements or solicitors by employers of more than 100 workers will be prohibited under severe penalties. Application for workers can be made either to the Washington or local branches of the United States Employment Service.

The extraordinary labor conditions in the munition factories of the country have obliged the Department of Labor to take control of the situation. After the 15th of July any employer with more than 100 workers who desires to add to his organization will have to secure his

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help through the various agencies of the United States Employment Service, or he may submit a plan of his own to the Employment Service and possibly obtain a permit or license to follow his own plan if it is approved.

In all probability employers will for some time be allowed to use their own plans when approved by the Employment Service, as it is expected that the compulsory procurements of labor through the Employment Service will not be completely effected immediately. It will have to be worked out in detail, which will probably take several months.

Hanch Heads All Purchasing

WASHINGTON, June 18—C. C. Hanch, vice-president of the Studebaker Corp., South Bend, Ind., has been appointed chief of the Automotive Products Section of the War Industries Board succeeding Harry L. Horning, whose resignation was recently accepted. Hanch will have complete charge of the purchases both by the Allies and the U. S. Government of all automotive products including motorcycles, trucks, ambulances, trailers, passenger cars, tanks, tractors, armored cars, airplanes, stationary gas engines and all automotive accessories. The motor transport service of the U. S. Army, which controls the military truck purchases, the motor equipment section of the Ordnance Department which buys the tanks and tractors and the many purchasing agencies of the Allies will lay their contracts before Hanch for final supervision before placing them.

Fewer Models for Overland

TOLEDO, June 17—Willys-Overland, Inc., will discontinue the manufacture of two or three models according to next year's program as a war economy and efficiency measure. With the start of production in September or October, the Model Four, the new low-priced car, will be made the leading model of the company. The company has been eliminating models every month; it is now producing sixteen.

The price of the new car is not yet determined but it is stated that it will be a little higher than $500. The company reports that all dealers have been notified of another price increase in its present models. This is the second advance since April. The new prices which have not been fixed as yet will take effect July 15.

Despite newspaper reports to the contrary, the Willys-Overland Co. is not planning the construction of a new automobile manufacturing plant in Canada for the production of the new little car. The company has a plant in Toronto where it builds the Sunbeam and when the little car is ready for production the same building will be used by the company to assemble it; no other structure will be built for this purpose. According to officials of the company, two models of trucks will be brought out by the first of next year. These will be of 1 and 2-ton capacities.

Higher Railroad Rates Boost Sales of Trucks

Omaha Expects Big Increase in Return Loads Bureaus and Rural Express Routes

OMAHA, NEB., June 15—A considerable increase in the use of motor trucks for short freight hauls and the early establishment of Return Load Bureaus in Omaha and Council Bluffs promise to be early developments of the increase in railroad freight rates ordered by Director General William G. McAdoo.

Already truck lines for bringing to market every kind of farm produce are running into Omaha and Council Bluffs from every direction within a radius of at least 50 miles. Thus far this season over 75,000 head of hogs have been brought to the South Omaha livestock market in this manner; the first to be brought in this way was hauled to market last fall. A single day's deliveries of hogs brought in by truck amounted to 1306 head. Young cattle are also being brought in largely in this way, while merchandise for stores in towns near here is already being hauled in considerable quantities on the return trips, but this feature has not been systematized or extensively developed as yet.

Chambers of Commerce of both cities, however, are working hard on the matter, and meetings are already being arranged at which details of the Return Loads Bureaus will be worked out along lines already found effective elsewhere.

Road conditions, particularly in Nebraska, are the chief stumbling block in the way of the movement, and the commercial bodies will give this feature special attention before proceeding, with the object of stimulating road work of a permanent nature, funds for which are readily available if but little effort is made.

Co-ordinate Trucking and Waterways

WASHINGTON, June 18—The first comprehensive co-ordination of inland waterways and motor truck transportation starts this week at Troy, N. Y. The Harvie Transport Co., operating a 5-ton motor truck from Troy to North Adams and Wilmington, Mass., and Bennington, Vt., is hauling freight or express delivered at the docks in Troy by the Troy Evening Line, which operates between New York City and Troy.

The plan includes store-door collection from the shippers at New York by a motor truck express company in New York City and store-door delivery by the Harvie company to the consignee.

It is expected that four 5-ton trucks will be operated by the Harvie company within 30 days. A combination of rates has been established equal to the regular express rates. This marks the first step for a co-operative transportation by the Highways Transport Committee and the Inland Waterways Transportation Committee. Raymond Beck of the Highways Transport Committee is handling this plan from the motor truck end, working directly with the Department of Agriculture which controls the waterways transportation.

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Hold Up Steel Shipments

WASHINGTON, June 17.—Temporarily all steel shipments are withheld from non-war industries. There is official authority, however, for the statement that there will be frequently, during the war period, considerable quantities of steel and pig iron for consumption by non-war industries.

Despite the announcement made last week by the War Industries Board that the new priority system would have no effect upon steel shipments, which, it was said, would continue as in the past few months, it is evident that steel will be completely withheld from manufacturers of non-war products for the time being. MOTOR WORLD has had reports from several manufacturers stating that steel has been refused, with the advice that a priority certificate order would be issued only if the steel was intended for war work.

Within the next week a definite announcement will be made by the War Industries Board on the steel situation, and what steel non-war industries may expect. The War Industries Board is in an uncertain position. Officials are frank in their statement that they do not know fundamentally of the steel crisis, and are indefinite as to what action will be taken. There will be a conference between the War Industries Board and the Steel Industrial Committee on June 21, following which a definite statement will be made.

Ford To Begin Boat Production

RIVER ROUGE, MICH., June 17—Production of submarine destroyers at Henry Ford's plant, west of Detroit, will begin this month. The huge plant has been erected in slightly over 100 days, and everything is in readiness for the launching of the first boat. According to present plants one complete submarine destroyer will be made each day at the plant.

Harroun Price Advances

WAYNE, MICH., June 17—The Harroun Motors Corp. will increase the list price of its car from $895 to $995, June 30.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

Charles B. Wilson, president of the Wilson Foundry & Machine Co., Pontiac, will assume the added duties of assistant general manager of the Curtiss Aeroplane & Motor Corp., Buffalo, in charge of production.

W. W. Burke, former sales manager of Gray & Davis, Boston, and sales manager of the starter department of the American Ever-ready Works, Long Island City, has joined the Pierce-Arrow Motor Car Co., Buffalo, as sales representative.

O. R. Hardwell, who was assistant advertising manager of the Chalmers Motor Co., Detroit, several years ago, has been appointed manager of the Overland Sales Co., Galesburg, Ill. He has been district manager for the Cleveland company in Iowa for some time.

E. H. McCarthy has been appointed manager of the Orders and Deliveries Department of the Hyatt Roller Bearing Co., Tractor Bearings Division, Chicago.

Henry H. Hower has been appointed production manager at the New London, Conn., naval base. He was a former official of the Ohio State Automobile Association, and was division manager of the Willys-Knight department of the Willys-Overland Co., Toledo, previous to taking up war work. He was also later advertising manager for the F. B. Stearns Co., Cleveland.

Finley R. Porter, formerly chief engineer of the Mercer Motor Car Co. and afterwards designer of the F. R. P. cars at Port Jefferson, L. I., has joined the government establishment at McCook's field, Dayton, Ohio, as airplane engineer in charge of engine development.

E. A. Bowman has relinquished his interest in the Bowman-Gould Co., Detroit, successor to the E. A. Bowman Co.

H. B. Cunningham, for several years connected with the S. R. Blocksom Motor Co., Philadelphia, Stutz distributer, has been elected general manager of the Automobile Co. of Philadelphia, 674 North Broad Street, Philadelphia. Cunningham is in charge in this territory for the Westcott.

Allan A. Templeton, former president of the Detroit Board of Commerce, and president of the Detroit Seamless Steel Tubes Co., has been made director of the Detroit Industrial zone. He will have general supervision of the production of war materials in this zone.

James G. Roe, who was formerly connected with the advertising department of the Hupp Motor Car Corp., Detroit, and later with E. A. Nelson, Detroit, mechanical engineer, has enlisted in the tank division of the United States army.

H. H. Brand, former secretary and treasurer of the Ohio Electric Car Co., Toledo, has joined the American Magneto Co., which recently moved to Toledo from Monroe, Mich.

E. C. Gavin, for nearly 10 years general superintendent of the Chicago Rubber Clothing Co., Racine, Wis., which is a large manufacturer of inner tubes, has resigned to assume the management of the Chippewa Rubber Co., Eau Claire, Wis., of which he is vice-president.

James Couzens, formerly connected with the Ford Motor Co., and now Police Commissioner of the city of Detroit, has been appointed chairman of the Wayne County Coal Committee to succeed Edgar B. Whitcomb, who has been asked to resign.

R. R. l'Hommedieu, long connected with motor car advertising on the Pacific coast, is editor of *Motor Way*, which is the house organ of the F. J. Linz Motor Co., National and Liberty dealer, San Francisco.

P. J. McCullough, who has been engaged in work for the development of the U. S. Army Air Service on the Mexican border, has returned to his work as superintendent for the Park Automobile Co., St. Louis.

Carl R. Jones, branch manager for the Bearings Service Co., in St. Louis, has enlisted in the navy and **L. H. Ware**, assistant manager, has been promoted to the management.

Wesley Deem, former production manager of the Columbia Motors Co., Detroit, has been appointed production manager of the Lane Motor Truck Co., Kalamazoo, Mich.

Fred A. Wade has been appointed purchasing agent of the automobile division of the Studebaker Corp., with headquarters at Detroit. He will take up his new duties July 1, having resigned as superintendent of purchases of the Buick Motor Co., Flint.

J. B. Sweeney, formerly with Theodore F. MacManus, Inc., Detroit, advertising agents, has been appointed assistant advertising manager of the Paige-Detroit Motor Car Co., Detroit, succeeding A. W. Schalbach.

Bert Miller, former general foreman of the heat-treating department of the Studebaker Corp., Detroit, has joined the ordnance department of the Harroun Motors Corp., Wayne, Mich., as superintendent of heat-treating.

W. A. Haynes has been appointed manager of the automotive division of the Detroit office of the Westinghouse Electric Co., succeeding Major Hawxhurst, resigned.

Smith Heads J. & D. Tire

CHARLOTTE, N. C., June 17—At the meeting of the Board of Directors of the J. & D. Tire Co., W. F. Smith was appointed president and general manager, and E. M. Downs was made vice-president and factory manager. R. L. De Lisser remains secretary of the company.

Pacific Coast Kissel Branches Under One Head

William L. Hughson Co. Also Will Operate as Coastwise Distributer for Kissel, Federal, Doble Steamer and Ford

SAN FRANCISCO, June 17—William L. Hughson, who has been president of the Pacific Kissel Motor Car Co. at San Francisco, with branches in six of the larger cities on the Pacific Coast, has taken over the entire Pacific Coast organization and representation.

The new company is to do business under the style William L. Hughson Co., and will operate as coastwise distributer of the Kissel Kar, Federal truck, Doble steam car and Ford. The change in name in no way alters the personnel or policy of the company. Hughson is president of the San Francisco Automobile Trades Association and a director of the Motor Car Dealers' Association of San Francisco.

Ford Enters Senatorial Race

DETROIT, June 17—At the request of President Wilson, Henry Ford has agreed to become a candidate for United States Senator from Michigan. In many quarters the news is received joyfully while comment in other parts runs along a disapproving vein. Among these the opinion is that Ford should remain at the head of his various companies and not assume any added responsibilities. His multifarious duties are enough to keep him busy and his move to take part in a senatorial race is severely criticized. In the majority of cases his candidacy is viewed with favor.

Sunderman Moves Office to Newburgh

DETROIT, June 17—The offices and engineering force of the Sunderman Corp., formerly located here, have been moved to Newburgh, N. Y.

Motor Car Securities Quotations

	Bid	Asked
*Ajax Rubber Co	57	60
*J. I. Case T. M. Co., pfd	80	86
Chalmers Motor Co., com.	5	6
Chalmers Motor Co., pfd.	30	40
*Chandler Motor Co.	86	88
Chevrolet Motor Co.	130	135
*Fisher Body Corp., com.	35½	39
*Fisher Body Corp., pfd.	82	87½
Fisk Rubber Co., com.	54	57
Fisk Rubber Co., 1st pfd.	98	102
Fisk Rubber Co., 2nd pfd.	75	85
Firestone Tire & Rub. Co., com.	89	91
Firestone Tire & Rub. Co., pfd.	92	95
*General Motors Co., com.	133	135
*General Motors Co., pfd.	82	82½
*B. F. Goodrich Co., com.	43¾	44½
*B. F. Goodrich Co., pfd.	98	100
Goodyear Tire & Rub. Co., com.	165	170
Goodyear Tire & Rub. Co., pfd.	98	100
Grant Motor Car Corp.	3	3½
Hupp Motor Car Corp., com.	2⅞	3
Hupp Motor Car Corp., pfd.	79	85
International Motor Co., com.	30	35
International Motor Co., 1st pfd.	55	65
International Motor Co., 2nd pfd.	35	45
*Kelly-Springfield Tire Co., com.	48	48½
*Kelly-Springf'd Tire Co., 1st pfd.	75	87

	Bid	Asked
*Lee Rubber & Tire Corp.	18⅝	18⅞
*Maxwell Motor Co., Inc., com.	26½	28
*Maxwell Motor Co., Inc., 1st pfd.	52	54
*Maxwell Motor Co., Inc., 2nd pfd.	19	20
Miller Rubber Co., com.	99	101
Miller Rubber Co., pfd.	93	95
Packard Motor Car Co., com.	109	116
Packard Motor Car Co., pfd.	93	95
Paige-Detroit Motor Car Co.	15	17
Peerless Truck & Motor Corp.	13	17
Portage Rubber Co., com.	103	106
†Reo Motor Car Co.	13½	14½
*Saxon Motor Car Corp.	7½	8
Standard Motor Construction Co.	12	12½
*Stewart-Warner Speed. Corp.	56	58
*Studebaker Corp., com.	45½	47
*Studebaker Corp., pfd.	75	90
Swinehart Tire & Rubber Co.	38	42
United Motors Corp.	28	28½
*U. S. Rubber Co., com.	57	59
*U. S. Rubber Co., pfd.	102	103
*White Motor Co.	41	42
*Willys-Overland Co., com.	19½	20½
*Willys-Overland Co., pfd.	81	83

*At close June 15. Listed N. Y. Stock Exchange. †Par value $10.

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Wisconsin Dealers Go on War Service Basis

Salesrooms Are Closing Early and Sundays and Every One Seems to Like the Idea

MILWAUKEE, June 17—The motor car trade of Wisconsin is now on a hard and fast war basis and all recommendations of the war economy board with respect to early closing of salesrooms, repairshops, garages, etc., are being strictly enforced throughout the state.

Although Milwaukee went on the new war basis on June 1, it required about 2 weeks' time to inform the trade in the interior relative to the rules and to allow them to readjust their business. Alfred Reeke, Milwaukee, state representative of the war service committee, and Bart J. Ruddle, secretary of the National Automobile Dealers' Association, have spent most of the period since June 1 in traveling through the state, addressing meetings of dealers in various communities, and otherwise providing for strict observance of the new regulations.

An instance of the unselfish attitude of organized distributers and dealers in Milwaukee is the plan of the Milwaukee Automobile Dealers, Inc., to inform the motoring public where service is available after regular hours in case of distress. As already noted, five emergency service stations are being established in the city of Milwaukee, where 24-hr. service will be available. Each of these stations will be equipped at the expense of the M. A. D. with a large illuminated billboard, and the highways leading into the city will be placarded so that passing motorists may know where to seek aid when necessary during the evening or night time. The expenditure will be made purely for the convenience of motorists.

All tire dealers and tire repairshops in Milwaukee at a meeting last week agreed to observe the new rules and close promptly at 6 p. m. and on Sundays and holidays, beginning June 15. Until then nearly every tire dealer of importance gave 24-hr. service.

At Fond du Lac, Wis., the war economy program resulted in the organization of the trade for the first time. Fifty-two out of 56 dealers and garagemen in the county met to learn about the rules and formed the Fond du Lac County Association of Automobile and Accessory Dealers, electing these officers: President, F. A. Johnson, Fond du Lac; vice-president, Peter Entringer, St. Cloud; secretary, T. W. Meiklejohn, Fond du Lac; assistant secretary, W. H. Kerr; treasurer, H. A. Shiels, Fond du Lac.

Des Moines Adopts War Service Hours

DES MOINES, June 17—Twenty-two Des Moines garages and repairshops have formed an agreement to close their shops at 6 p. m. each week day and all day Sundays and holidays. The early closing is being advertised on a co-operative basis by the twenty-two shops as a war measure. No repair work or accessory sales will be made after 6 p. m. daily but there will be employees sufficient to handle the storage cars.

Illinois Gets 750 Fordsons

CHICAGO, June 17—An allotment of 750 tractors has been made to Illinois by Henry Ford & Son, Dearborn, to be delivered direct to farmers at the factory price of $750 plus $25 for freight and delivery charges. The distribution for the state will be handled by the Rue Motor Co., Chicago, distributer for the Fordson. The company will hold a 2-day demonstration at Aurora, Ill., Monday and Tuesday of the next week at which Governor Frank O. Lowden and Henry Ford will be present.

Missouri Registers 163,201

ST. LOUIS, June 17—The sale of 1918 license plates in Missouri began Feb. 1. The report compiled up to June 1 gives this number of sales: 163,201 owners' plates; 1503 dealers' plates; 3140 motorcycles; 16,786 chauffeurs badges; 3901 transfers. The St. Louis office report (included in the above) is: 30,165 owners; 8263 chauffeurs; 1055 motorcycles.

Another Tractor Plant for General Motors

JANESVILLE, June 17—The General Motors Co., Detroit and New York, has selected Janesville, Wis., as the location of a third plant for the manufacture of the Sampson farm tractor, according to excellent authority. The corporation has acquired a site of 125 acres in Spring Brook, a suburb of Janesville, and intends to erect a complete new plant costing about $100,000, it is stated. Work is to begin as soon as arrangements can be made for the preparation of plans and the award of contracts. On the same authority it is stated that the General Motors Co. has acquired the Janesville Machine Co., manufacturing farm tillage tools and other agricultural implements and machinery, to co-operate with the new tractor plant in providing complete outfits in combination. The Janesville Machine Co. will enlarge its line of products to include power farm machinery which is in greatest demand for use with tractors. The company will continue to be operated as a distinct enterprise and will not lose its identity. J. A. Craig, general manager, will act in the same capacity for the new tractor industry, it is said.

The Sampson tractor is now being manufactured at Pontiac, and Oakland. The demand for tractors, however, is so large and growing so rapidly that the two plants are able to fill only a part of orders. The proposed third plant at Janesville is to be the largest of the group.

Janesville is one of the largest manufacturing cities in Wisconsin and is particularly well located with respect to railroad facilities. Both the Chicago and North-Western and Chicago, Milwaukee and St. Paul roads maintain large division headquarters at this point.

Ohio Tractor Dealer Has Sold 1,000 Fordsons

Fordsons Have Been Placed Throughout the State in An Energetic Campaign

COLUMBUS, OHIO, June 15—The Bryant Tractor Co., which has moved into permanent quarters at 171 North Fourth Street, distributer for Fordson tractors for Ohio, will have closed out its 1000 tractors before July 1, according to E. H. Bryant.

One of the features of the distribution of Fordson according to Bryant is the fact that Putnam, Paulding, Van Wert and Allen counties, where other tractor salesmen had failed to place farm tractors, absorbed a large number of the Fordsons. The soil in those counties is said to be such that tractors could not be used to advantage but the Fordson disproved that idea. Tractors have also been placed in the hill counties of Ohio in large numbers and demonstrations of hill plowing were eminently successful.

Bryant estimates that he can place 8000 tractors in Ohio if able to get such a number from the factory. A careful survey of the state shows that such a number could be sold in the state without great trouble.

The Bryant Company is making almost daily demonstrations of the use of the Fordson. The company has six experts traveling the state at all times making demonstrations and showing purchasers how to operate the tractor.

The Bryant Tractor Co. is now working out a plan of selling tractors on time and to that end the assistance of the board of directors of the Federal Reserve Bank in Cleveland has been secured.

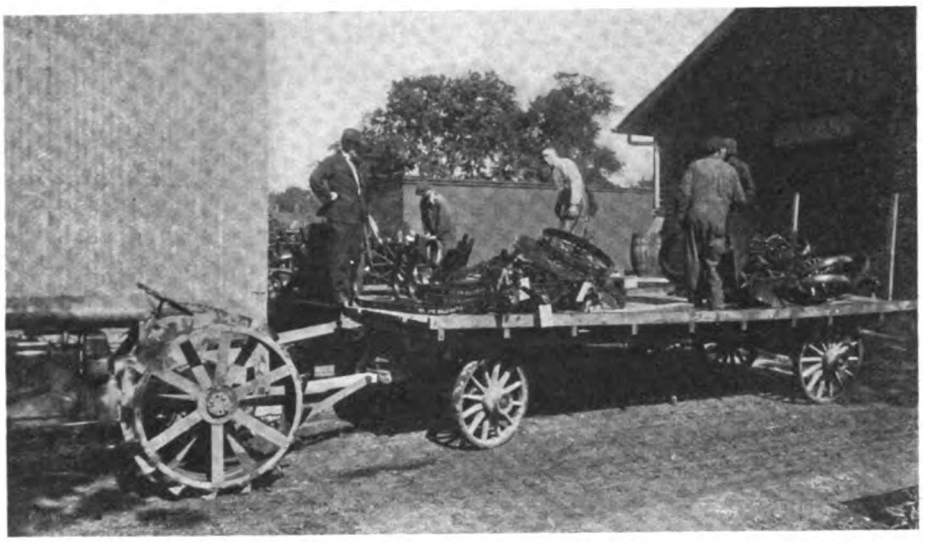
It was found that many country banks were not lenient in making loans or discounting paper given in the purchase of tractors. Attorneys are now preparing a note which will be used in making sales on the partial payment plan. Many banks have signified their intention to discount these notes at the usual interest rate.

It is estimated by E. H Bryant that fully 3500 acres has been placed under cultivation in Ohio as a direct result of the sale of the Fordson tractors He has heard where one farmer planted 200 acres in corn because of the plowing done by a recently purchased tractor Others put in more crops than they could have done otherwise and taking it all in all the benefits have been enormous, despite the fact that the distribution of tractors did not start until late in the spring plowing season.

Chevrolet Coast Production Touches 1200 in May

OAKLAND, CAL., June 15—During May the Chevrolet Motor Co. of California turned out more than 1200 complete touring cars and roadsters, as well as a number of FA passenger cars and light delivery vehicles.

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T. W. Meiklejohn, Fond du Lac, Wis., has designed a special hitch for attaching a trailer to a Fordson tractor. From the rear of a stub tongue a flat iron brace extends forward and downward and is engaged at its front end with a short flat iron brace which extends perpendicularly downward from the front end of the stub tongue. The hitch to the tractor draw bar is made at the junction of the two braces. The tractive effect is to take the weight off the front wheels of the trailer and transfer it to the drive wheels of the tractor, thus increasing the tractive power.

GETTING IN THE WHEAT

(*Continued from page* 30)

working by the hour signed up, taking their chances on getting work when they come back.

Motor car dealers took the same position as many merchants—that they would give every possible chance to a man who was generous enough to go out into the harvest fields to help in this emergency.

What Will the Dealer's Do?

What are the dealers—and the owners—going to do while the service shops are closed, or hampered with shortage of workers, during the harvest season?

The Bruening Bros. Co., Apperson dealer, has already closed its service department. All the men volunteered for work, after Bruening announced that if they would all go, the shop would be closed as the firm's contribution to the harvest emergency. It will be re-opened July 15.

"We will do no work in the shop except on our own cars, getting used cars into shape to sell," said Henry Bruening. "We will have enough men at our downtown headquarters to care for inspection service to owners, which will not be interrupted. Owners who want any work on their cars, we will direct to another service station, telling them the facts, that we are closed for the harvest season."

"The owners will have to make some sacrifices, too," said another dealer. "They will have to wait, unless they can get into some of the other service shops."

The Harry A. Lee Garage, Studebaker service station, will receive much of the work on cars of dealers whose plants will be handicapped. Lee himself has sent five mechanics to the harvest.

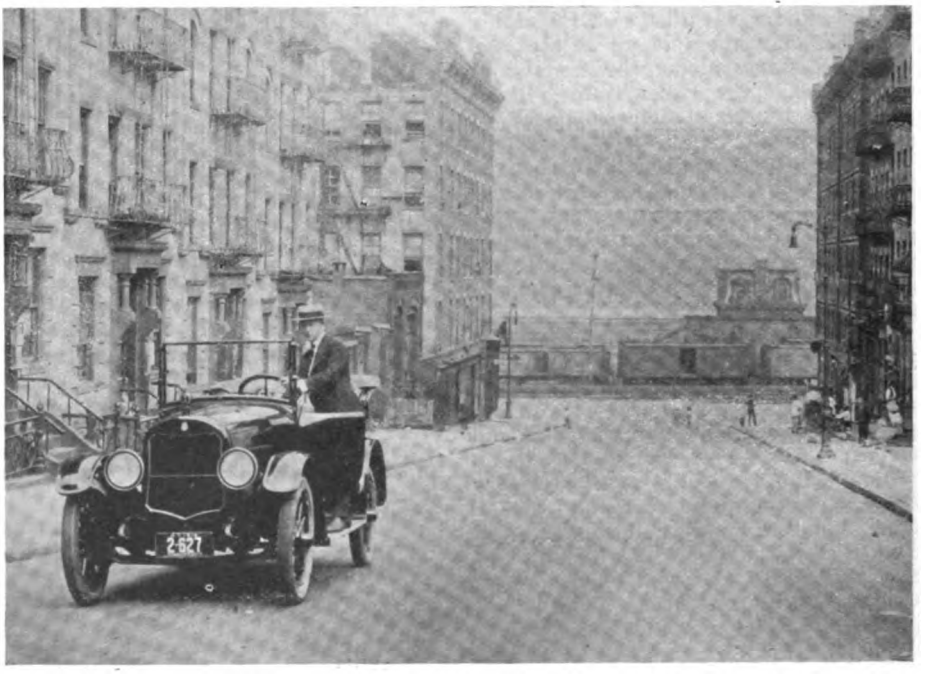
"We are hoping that car owners will now get into the habit of allowing us some time for handling their jobs," said the manager of the garage. "This is the propitious moment for a general campaign on car owners, to get them out of the idea that they can get their cars attended to the minute they are brought in. If owners would make arrangements ahead of time for attention, we would be able to handle our work easily, even with our labor shortage, and the pressure of work expected. We hope for the co-operation of dealers in educating the owners to such scheduling."

Many dealers see in this emergency, the golden opportunity to get away from free service, as well as to educate the owners in closer attention to their cars. Some of them lean strongly to the plan of monthly inspections as a means of keeping cars in condition without the necessity of expensive repairs.

The Bruening Bros. Co., has maintained the inspection system for nearly 3 years, and it has proved a splendid means of keeping cars in running order with a minimum of repairs. The company gives 12 months' monthly inspections to every new owner; and seventy-five per cent of the new owners take advantage of it, bringing their cars in on a definite date each month.

Many instances are related of owners who, regular in the inspections, have not had any trouble whatever—and of others who, missing one inspection, have trouble within the following 30 days. That the owners, even under former free-and-easy conditions wherein owners pay little attention to their cars, understand the value of inspections, is indicated in this fact: that 25 per cent of the Apperson owners whose inspection service period has expired, are now paying $7.50 per month for a monthly inspection. In no case does the company do any mechanical work on the car, merely readjusting.

It has been suggested that garages as well as dealers might establish inspection service, so that owners might forestall trouble with their cars. Garagemen do not warm up to this suggestion, however, their chief objection being their confidence that the owners would not want to pay out money for service until something happened to the car that prevented its running.



NOW comes a new and unique demonstration developed by the King Car Corp., distributer of the King in New York City. The prospect is taken to the foot of a test hill. The motor is brought to a stop with the gears left in high. Then the switch is turned on and the demonstrator leaves the car and starts the motor by pulling the rear wheel over slightly. The car immediately moves away in high gear and the demonstrator, standing on the runningboard, guides it half way up the hill at 2 m. p. h. At the half way point, he returns to his seat behind the wheel and accelerates until he is making 25 m. p. h. at the top.

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"Maxim" Is to Sell Trucks and Tractors

Munitions Corporation Has Secured Distribution of Dart and Will Handle Other Products

NEW YORK, June 17—The Maxim Munitions Corp., which was formed in 1915 to take over the inventions of Hudson Maxim, practically all of which are warlike in character, will enter the motor truck and farm tractor field. In addition to using its present extensive representation and connections to obtain wide distribution throughout the United States for a line of motor trucks and a a medium priced tractor for two or three plows, it also contemplates entering the export field aggressively.

The Maxim company is understood to have completed arrangements with the Dart Motor Truck Co., Waterloo, Ia., for the sale of its 1-, 2- and 3½-ton trucks throughout the Eastern territory. The truck will be sold through the Maxim organization as the Maxim-Dart.

In the farm tractor field it is planned to have a present manufacturer, already well equipped to produce tractors in quantity, manufacture a machine to special specifications which can be sold as the Maxim farm tractor.

The company will do both wholesale and retail business in each of these lines and its plans already have progressed to a point where a Broadway salesroom, with a service station adjunct, has been opened. This is located at 1651 Broadway, corner of 51st Street, and has been placed in charge of C. K. Thomas, who will have supervision over this territory, which has been designated the Metropolitan Sales Division.

The Maxim Munitions Corp. is capitalized at $10,000,000 and has close affiliations with a number of influential and widely known manufacturing industries. J. W. O'Bannon is president and chairman of the board of directors, the other officers being vice-president and secretary, Esmond P. O'Brien; treasurer and secretary, B. F. Taylor; treasurer and assistant secretary, B. F. Taylor; assistant treasurer, Harry Strachan

The main office of the company is at 120 Broadway, New York, and its principal manufacturing plants are in New Haven and Derby, Conn., and Watertown, N. Y.

Moon Push Organization Work

COLUMBUS, OHIO, June 15—Victor Moon, commissioner of the Ohio Automobile Trade Association is busy arranging and attending meetings in various parts of Ohio where there is much enthusiasm shown in the affairs of the organization. A meeting is scheduled for Youngstown June 18 and 19.

Kenosha Plant For Winther

KENOSHA, June 17—The Winther Motor Truck Co., originally organized at Kenosha, Wis., but operating in a leased factory group at Winthrop Harbor, Ill., just south of the city, has completed arrangements for the erection of its proposed new plant in Kenosha. The company is executing extensive contracts for military trucks and requires greatly increased facilities.

Price Changes

NEW YORK, June 17—The following changes in price have been made during the past week:

	New Price	Old Price
Reo, 4 cylinder, 2 and 5 pass.....	$1295	$1225
Studebaker, SH-4-40, 2-pass.....	1125	1050
5-pass.	1125	995
Sedan	1685	1525
EH-6-50, 2-pass.	1585	1450
4-pass.	1585	1395
5-pass.	1585	1395
E-G-6, 5-pass.	1985	1795
Sedan	2185	1950

Office for Indianapol's Association

INDIANAPOLIS, June 17—The Indianapolis Automobile Trade Association has opened a permanent office at 338 North Delaware Street. Assistant Secretary John D. Orman is in charge. There is a meeting room, and it is proposed to fit up club rooms.

Chicago Dealers Perfect Drive-Away Organization

(*Continued from page* 19)

this route in two days, Elkhart, Ind., being the end of the first day's drive, and Chicago being reached the second day. Garage accommodations are recommended at Bryan, Ohio, and at Ligonier and Goshen, Ind. Between Bryan, Ohio, and Butler, Ind., there is a stretch of 12 miles which is bad in rainy weather, but which ordinarily is in fairly good condition.

The Dashiel Motor Co., Chicago distributer of the Dodge Brothers cars, has a drive-away organization similar to the one previously described. It operates under essentially the same regulations and in the same manner. Dodge Brothers cars destined for drive-aways first are gathered into a special drive-away garage at Detroit, where they are subjected to a rigid inspection and prepared for the trip. In the way of spares practically nothing is carried except a few chains and tubes. The route followed closely parallels the line of the Michigan Central Railway through Michigan as far as Kalamazoo. This route is preferred because the grades usually are easier along a railroad line, and because the most practicable route is followed from town to town.

The route from Detroit to Kalamazoo is as follows: Detroit, Dearborn, Wayne, Denton, Ypsilanti, Ann Arbor, Dexter, Chelsea, Grass Lake, Jackson, Sandstone, Parma, Albion, Marengo, Marshall, Ceresco, Battle Creek, Kalamazoo. From Kalamazoo the route runs through Paw Paw, Lawrence, Hartford, Watervliet, Coloma, Benton Harbor, St. Joseph, Bridgman, Galien, Three Oaks, New Buffalo, Mich., Michigan City, Ind., Gary and into Chicago by the usual route.

Congress to Class Truck as Essential

It Will Not Be Taxed in Next Revenue Bill Unless Other Necessities Are Taxed Too

WASHINGTON, June 15 — Congress will, in the new revenue bill, recognize motor trucks as being 100 per cent utilitarian. Motor trucks will not be taxed in the next revenue bill unless other necessities are taxed. They will not be classified in the new bill with such luxuries as cosmetics, chewing gum and other similar commodities, as they were in the first war revenue bill. These forecasts are based upon the reception accorded the presentation of George M. Graham before the Ways and Means Committee this week. Graham appeared as the chairman of the Motor Truck Committee of the National Automobile Chamber of Commerce.

The trend of Graham's talk was that truck makers do not object to being taxed, do not object to an increase in the present tax, but do strongly disapprove of classification of motor trucks with luxuries.

At the outset of the address Congressman Claude Kitchin, chairman of the committee, expressed his sympathy with Graham's plea. In fact, every Congressman who questioned Graham displayed complete approval with the view that motor trucks are purely utility vehicles.

The presentation included descriptions of the uses of motor trucks and told of the 6000 war trucks which have been driven overland carrying spare parts and other supplies from the Middle West to points of embarkation. In addition Graham told of the Return Loads Bureaus, of the Rural Express Routes, how production of food is augmented by the trucks, and how railroad congestion has been reduced through the introduction of motor trucks for short hauls.

Coming before congressmen who are exasperated and wearied by requests for tax reduction, asking for no such reduction in motor truck tax and demanding only a fair classification of trucks as utility vehicles, Graham secured the sympathy of every Congressman. At no time during the presentation of his statement was there a word of disapproval, and there were frequent nods of accord on the part of the members of the Ways and Means Committee to his frank statements.

La Crosse To Make More Plows

LA CROSSE, WIS., June 17—To meet the enormous demand for plows, principally for use with tractors, the LaCrosse Plow Co., LaCrosse, Wis., will erect a large shop addition, 80 x 191 ft., part two stories high. Contracts have been awarded and work will be pushed so that the additional facilities may become available before the beginning of fall.

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Car Tax Proposals Discussed Before Ways and Means Committee

Alfred Reeves Argues Case for N. A. C. C. —Emphasizes Importance of Passenger Car as Transportation Medium—Deprecates Its Classification with Cosmetics and Other Non-Essentials—Congressman Gardner Opposes Further Production of Passenger Vehicles

WASHINGTON, June 17—Facing an attitude which from the first has been hostile to the automobile industry, General Manager Alfred Reeves of the National Automobile Chamber of Commerce last week appeared before the Ways and Means Committee of the House of Representatives in a discussion of further proposed taxes on the motor car industry.

Reeves presented a carefully compiled brief, which is printed elsewhere in this issue, and in addition was required to answer questions of the Ways and Means Committee for more than an hour.

The hearing made plain that while Chairman Claude Kitchin apparently believes in the necessity of the motor car and the essential character of the industry, greater revenue is necessary, and it seems likely that the motor car industry must contribute its share.

In presenting his case Reeves pointed out the unfairness of classing with cosmetics, jewelry, perfume and other like products an industry of the utilitarian value of the automobile. He fairly established the necessity of the modern motor car by stating that if all motor cars were removed from the city of Washington the street car system would break down miserably. Members of the committee agreed with him.

His talk was to the effect that automobile production should be encouraged on the ground that it is a necessity rather than be crippled by additional taxation. Reeves cited that many of the automobile manufacturers have failed in business, which was given as an example of the injustice of the tax. He made the statement that the great use of passenger cars by farmers, doctors and business men was an indication of their essential nature.

The congressmen in general took the ground that an added tax would not prove a prohibition in the use of automobiles.

Chairman Kitchin told that at the hearings last year the Packard Motor Car Co. stated that it would suffer seriously if the tax were passed, and despite the tax is doing bigger business than ever. He also stated that the tax on Packard cars amounted to $75, and showed that the Packard company had increased its price from $850 to $1,000, asking why the increase had been made and if the public could stand such large increases why it could not also afford a doubling of the tax.

Most of the congressmen were under the impression that the passenger car makers were also the truck makers, and were therefore being compensated for any loss in normal business by the war truck orders.

They wanted especially, however, to know if it would not be wise to curtail the industry by a high tax so that the workers and materials could be devoted to war work. Further, they inquired as to the amount of labor now devoted to passenger car manufacture, the kinds and amounts of materials used, the uses of the passenger cars, the amount of war work being done by automobile makers, the percentage of war work as compared to passenger car work, etc.

In a final summing up Mr. Reeves told that the buggy business, which formerly amounted to the production of 1,125,000 buggies per year, had decreased to less than 200,000 annually, and showed by this that the automobile replacing the buggy is doing utilitarian work. He went into detail following questions regarding the number of automobiles in the various states, and showed that Iowa has one automobile to every six people, and proved that passenger cars are being used to a very great extent by farmers.

Statement Made by Alfred Reeves Before the Ways and Means Committee

"The original tax under war revenue act of Oct. 3, 1917, of 3 per cent on automobiles, grouping them with piano players, talking machines, jewelry, perfume and chewing gum was doubtless placed on the theory of taxing articles that were non-utilitarian.

"The automobile industry, the third largest manufacturing industry in the country, deprecates the placing of automobiles with the articles enumerated, because during the past decade, both passenger and freight vehicles have entered so largely into the personal and business use of our people, that they must be considered articles of great utility.

"These time-saving vehicles have so increased our efficiency that their disuse or any marked decrease in the number in use would be nothing short of a disaster at this time when the speedy movement of persons and commodities is of such vital importance.

"It is hoped that no favorable consideration will be given to any plan of taxation that will discourage the purchase and use of motor cars, which are such great factors in our fast moving American life.

"The making and use of automobiles should not be discouraged because:

"1—The industry ranks third in manufacturing importance. Employs more than 800,000 people, who with dependents would populate several of our States; pays annual wages approximately equal to all the gold in circulation in the United States; employs capital of more than $1,250,000,000, exceeding by $250,000,000 the capitalization of all the national banks; produced finished products of nearly $1,000,000,000 in 1917. An important part of the war program is, and should be, the maintaining of industry to the fullest possible extent.

"2—The passenger mileage of automobiles exceeds that of the railroads by more than 10,000,000,000 passenger miles; they carried 3,000,000,000 more persons than the railroads carried in 1915; the value of this passenger mileage at 2 cents per mile would have been $900,000,000.

"It would be impossible to adequately replace this service under present conditions by any other former transit. A recent investigation developed that the farmers in Livingston County, Ill., bought 73 per cent of their automobiles as a necessary part of their farming equipment, 25 per cent for both business and pleasure. And 2 per cent for pleasure alone of 2,000,000 of the automobiles in use are owned by farmers. Nothing could be more disastrous to-day than to interfere with the efficiency of the farmer. Dr. H. A. Garfield, fuel administrator, rules automobiles to be public utilities. Herbert Hoover buys new car, although giving up chauffeur driving vehicle.

"3—No automobile is exclusively a pleasure car. The most expensive machines are used more or less in a utilitarian way. There can be no danger that so-called pleasure use of automobiles can be permitted to become wasteful of gasoline, because Mr. Requa, oil director of the Fuel Administration, has ample power to enforce any rules necessary to conserve fuel.

"4—There are 5,000,000 passenger automobiles in use to-day; probably 850,000 per year will wear out. If production is not kept up residential suburbs would become to a considerable extent impracticable, tending to greater congestion in cities; local and suburban transportation facilities would be inadequate; suburban and farm values would decrease tremendously; the efficiency of farmers would be impaired very greatly.

"5—Automobiles are the greatest economizers of time of farmers, doctors, contractors, builders, salesmen and men engaged in all business.

"6—They increase efficiency of individual when farm labor is scarce; physicians are assuming the practice of doctors who have gone to France and manufacturers are called on for increased production. There are 150,000 doctors in the United States.

"7—Railroad service has been curtailed, and many valuable hours will be lost by business men if use of the automobile is curtailed.

"8—Automobiles have been used most liberally in the campaigns for sale of Liberty Bonds and War Saving Stamps, to raise war funds for the Red Cross and Y. M. C. A., in recruiting and in many other ways connected with war activity. To discourage the sale of automobiles will make these activities less efficient.

"9—Further reduction of manufacture will force out of business a large proportion of the 27,500 dealers and 25,000 garage owners, whose livelihood is derived solely from sales and care of motor cars and accessories and who are located in every town and hamlet in America.

"10—Eleven big companies made 85 per cent of the cars in 1917; more than 200 manufacturers produced only 15 per cent of all the passenger cars made.

"These are the ones who will suffer most from any increased taxation, because their profits are smallest and they are unable to secure war contracts to keep their plants in operation. There are bound to be many failures among them. Forty-nine failed or went out of business since last October.

"11—With growing scarcity of foods, the use of the automobile instead of the horse should be encouraged. Every horse continued in use represents 5 acres of land and the necessary labor to produce oats and hay and other feed diverted from the production of human foodstuffs.

"12—The automobile is one of the greatest utilities we have and renders a passenger car service exceeding that of the steam and electric railroads combined. By no stretch of imagination can it be classed with intoxicating liquors, cosmetics and so-called non-essential luxuries.

"13—To replace the cars that are worn out an annual production of about 850,000 cars is necessary, the average life of an automobile being figured at approximately six years. Production thus far in 1916 was at rate of only about 1,000,000 a year.

"14—A tax on this article with any thought of arresting its production seems unwarranted; the question of how many machines should be produced is one of materials and labor, and production should be maintained on a basis consistent with these conditions. This is a matter entirely apart from taxation and is being dealt with by another arm of the government, the War Industries Board.

"15—It is unfair to compare the motor vehicle industry of this country with that in European countries. England has only 260,000 passenger cars and imports all her gasoline, whereas as in this country we have seven States each which has more than 260,000 cars (New York leading with 451,000), while gasoline production here is almost 7,000,000 gallons a day, according to the Bureau of Mines report.

"16—It is a great economic mistake to reduce this output and disarrange organizations important to the prosecution of the war more than our own conditions as to material and labor make it absolutely necessary. The

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more restricted because of these reasons the greater misfortune.

"17—Holding great automobile organizations for war work seems vitally important at this time and scores of the automobile plants are now doing government business, with many other companies asking for similar work.

"The government should add no undue burdens to this great industry; it should be maintained as fully as economic conditions will permit in order that such a vital and large part of our community may be in position to participate in government loans, income and other taxes and in other ways.

"It is to be regretted that the automobile industry as a whole is sometimes judged by the glittering successes of a few companies. Probably no other business presents the same mortalities during the past eight years, our lists showing 760 companies that failed or went out of business during that period. Since last October, when the new revenue bill was passed, there have been forty-nine companies that failed or went out of business. The 450 manufacturers of motor vehicles and the 825 manufacturers of motor vehicle parts and accessories and the 52,000 motor vehicle dealers and garages, with their more than 800,000 employees, constitute an important part of our manufacturing business labor community. Greater loyalty to our present cause exists now here and it is their earnest desire to pay for any equitable tax in their power that is considered necessary for the prosecution of the war. If it is considered necessary and wise to raise revenue by a manufacturing tax on essential articles, with which the motor car must be classed, there will be no complaint or objection, but it would then naturally follow that the quota necessary would be so distributed over a wide variety of articles so as not to be so burdensome on any one.

"With their business dwindling owing to advanced price due to increased cost of labor and material and of which this tax also forms a part and with a realization keener than others owing to their close contact with the subject that motor vehicles are vitally essential to our national efficiency, the manufacturers ask you to now reconsider and come to an appreciation of the point that an economic error is being made in grouping motor vehicles with non-essential articles for revenue raising purposes.

"It has always been felt that a great injustice was done to the motor truck when it was included in the last war revenue bill with perfumes, sporting goods and musical instruments and subjected to a tax of 3 per cent. There can be no argument on the statement that motor freight vehicles should be taxed only under a plan of taxing articles of use and necessity. The motor truck has so demonstrated its ability to operate not only in motor trucking field, but as a long haul substitute for inadequate railroad facilities and for marketing farm produce that this has become self evident.

"In its consideration of tax measures by the members of the Ways and Means Committee it is hoped that the tax on the automobile manufacturer will not be increased to a point where it would disturb the making or use of the motor car, which is now such an important factor in adding to the efficiency of the nation because of its ability to transport men and materials in the shortest possible time and to the needed relief of the railroads."

War Conditions Eliminating Free Service

Many Kansas City Dealers May Teach Owners to Take Care of Cars—Others May Institute Inspection System

KANSAS CITY, June 15—War conditions are helping to eliminate free service on motor cars, but are also helping to develop a substitute far more profitable and satisfactory to the motor car owner.

This is the conclusion of many Kansas City dealers. There is some difference of opinion as to just what this substitute will be—but no difference in the general character of the development. The evolution is in the direction of closer attention to their cars by owners, so that the cars may be kept running more consistently without the necessity of extensive overhauling.

There are two "schools of thought" in Kansas City for motor car dealers as to how motor car owners can be best assisted toward the most efficient operation of their cars, with the minimum of expense for repairs and overhauling. One "school" believes earnestly in the education of the owners; the other school advocates the establishment of schedules for inspection of cars at short intervals, at a suitable charge, so that owners need not bother with any details of readjustment except possibly the very minor ones.

The educational project is already being worked out by the Motor Car Dealers' Association, the Automobile Club of Kansas City, and the individual dealers.

The Motor Car Dealers' Association is planning promotion of the educational idea as a feature of its general program in pursuance of the projects suggested by the National Association. It is in the position of co-operating also with other general educational enterprises through which it is hoped the owners will get into the habit of studying their instruction books and taking advantage of the facilities for information on their cars offered by the various dealers.

The Automobile Club of Kansas City has for the past three months been paying considerable attention to educational features. The programs of the monthly meetings have been largely devoted to lectures and demonstrations on engines and car parts by experts. This sort of program has proved highly popular among the members and an announcement of a lecture draws a larger crowd than even the most eloquent orator on general subjects.

E. J. Sweeney, proprietor of the Sweeney Automobile and Tractor Training School, delivered a talk recently on the owner and his motor car. Sweeney told the owners that they should not expect nor try to become expert mechanics on automobiles, but that they could profitably learn many of the details of their cars, knowledge of which would cut down tire expense, and help them to avoid serious depreciation in the car.

A. Bannowsky, superintendent of the Rahe Automobile Training School, delivered a lecture recently before the club, explaining many of the mechanical ills of cars which owners should know about. Other recent programs of the club have had supplemental features of instructions to car owners. These meetings have always been lively with many questions.

A. E. Hutchings, president of the Automobile Club of Kansas City, one of the leaders in all war enterprises of the city, has been highly gratified by this interest among the members in the technical meetings. He and the officers feel encouraged to proceed with an educational plan which will back up the suggestions of the War Industries Board leading to a reduction in demands on mechanics.

"An educational committee would be a valuable adjunct to the club," said Hutchings. "The Executive Committee has this matter on its budget for its next meeting, and will probably appoint a committee to work out a program and decide upon the extent of instruction that should be extended. Possibly we will get out tracts to members, as well as arranging for demonstrations and instruction at meetings."

The club's monthly bulletin is featuring suggestions to motor owners on the care of their cars. The second floor of the Automobile Club's building can be cleared of cars, and here two or three hundred members could see demonstrations on two or three cars; such demonstrations probably will be put on.

Tractors for Seeding

WHILE the tractor is being used to some extent both for seeding operations and for grain harvesting, the proportion of machines put to these tasks regularly is surprisingly small. That there will be an extension of tractor use for such purposes in the future, as soon as certain things come to pass, admits of no doubt.

One will be the designing and construction of large capacity seeding machines which shall be especially adapted for use with the tractor, and another will be the development of a thoroughly satisfactory binder hitch which shall be more universally adaptable than is anything of the kind now on the market. There is an enormous field for the development of special power farm operative equipment and for attachments and hitches. This just has begun to occupy the attention of farm implement manufacturers. The very insistency of the demand will stimulate design and expedite production, and it may be anticipated that the line of specially designed power machinery will grow rapidly. *It is an end much to be desired.*

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California Car Dealers Gloomy Over Outlook

Generous Distribution of Storage Stocks to Sub-Dealers Results in Shortage and May Cause Loss

LOS ANGELES, June 15—Announcements from Washington have been followed by a feeling of gloom among the distributers and dealers in southern California.

Anticipating price increases, distributers for weeks have been notifying subdealers to order as many cars as they could care for and usually the advice was heeded. The distributers thereupon cut deeply into their storage stocks to supply the dealers and the result is that they stand to be losers. One distributer, whose contract calls for the shipment of 30 cars per month has not received a shipment from the factory in three weeks. His stock has been cut into deeply and unless the manufacturer comes to his relief quickly he will be out of cars and compelled to buy back from sub-dealers to fill his own retail orders.

Distributers are doubtful if advancing prices will help them out much. Although it means additional profit on cars in stock, if public sentiment fosters the idea that it is not patriotic to buy motor cars in face of the attitude of the government toward them, there will be a corresponding reduction in the demand. Already consumers here are being made to think by a checking system operative at all gasoline supply stations under which every gasoline purchaser is asked the use he makes of his car. The check was ordered by the Fuel Administration, it was said.

A canvass of the dealers showed that practically none has taken steps to safeguard his investment against the future. All seem to be holding out hope that a change will be brought about before the worst comes.

The tractor field is not making an appeal, owing to local conditions and dealers believe that the demand for tractors in more agricultural localities than Southern California will exceed the supply, so that a tractor agency here would afford little relief. At this time there is but one passenger car dealer in Los Angeles who also sells a tractor.

Some of the dealers have stated they will operate their establishments as garages and repairshops. One is now planning to install a paint and top-making department. He does not believe that the private use of cars will be curtailed seriously and figures that the more old cars there are in service the better business will be in these branches. He also contemplates putting in a large stock of parts of various makes of cars to help in the repair business.

The most optimistic dealer is the pessimist of the past. His line of cars has not been in big demand and he has accumulated a large number of storage. With the supply of more popular cars exhausted he expects to step into the breach and "get on the map" in a way that did not appear possible under normal conditions.

No Gasoline Tax

WASHINGTON, June 15—Reports that a high tax on gasoline used for passenger cars and motor trucks will be placed in effect in July or August are untrue. These reports published by papers throughout the country are the result of a speech made in congress advocating such a tax.

There has been no bill prepared for such a tax, and even if this tax were to be placed in effect it would be incorporated in the new proposed taxes which are just now being discussed by the Ways and Means Committee, and which will probably not be placed in concrete form and passed by Congress for several months.

Rates for Renting Vehicles to Government

WASHINGTON, June 15—The rates for renting automobiles, motorcycles, traction engines and motor trucks by government contractors under the cost plus system is shown in the cost plus regulations to be as follows:

	Per day
Automobiles	$2.00 to $8.00
Traction engines	2.00 to 15.00
Motorcycles	0.25 to 1.00
Motor trucks	1.00 to 25.00

Fuel, lubricants and labor are not included in the above.

To Sell Herz Products

NEW YORK, June 15—The Pro-Mo-Tor Corp. has been formed for the purpose of exploiting the products manufactured by Herz & Co., New York. The new company will organize an advertising and selling campaign, and has elected officers as follows: President, Russel A. Cowles, president of the Ansonia Clock Co.; vice-president and general manager, Gustave L. Herz; treasurer, Edward S. Rothschild, president of the Public National Bank of New York, and secretary and counsel, Mark Eisner, United States Collector of Internal Revenue of New York.

Fifth Avenue Store for Silver

NEW YORK, June 14—C. T. Silver, Inc., metropolitan distributer of Kissel and Apperson cars, will open a branch salesroom at 509 Fifth Avenue on July 5. It is Silver's idea that the high class clientele to which he caters will be best reached by a salesroom in such a location.

Rowe Moves to Lancaster

LANCASTER, PA., June 14—The Rowe Motor Mfg. Co., which produces motor trucks, has moved its entire organization from Downington, Pa., to this city.

New York State to Show Off Tractors

Has Schedule of Demonstrations During Coming Summer in Farm Localities

ALBANY, June 17—The New York State Food Commission, of which Calvin J. Huson is director, has arranged to hold a number of farm tractor demonstrations in different parts of the state during the coming summer. The schedule includes the demonstrations at Watkins, Schuyler County, on June 26, and another at Stanley, Ontario County, on July 4. The dates and locations of other demonstrations have not been definitely determined, though it is planned to hold demonstrations in the following counties in this order:

Cayuga, Onondago, Oswego, Wayne, Monroe and Orleans. In addition there will be a demonstration in Orange County on Aug. 1, and another in Columbia County on Aug. 15.

The commission has arranged with the manufacturers of the Titan, Fordson, Case, Cleveland, International, Emerson-Brantingham, Avery, Moline and Bates tractors to have machines and representatives on hand at all of these various demonstrations, and it is hoped also to lengthen this list considerably, which probably will be made to include the Happy Farmer, Huber, Waterloo Boy, Sandusky and others.

Demonstrations will be run off under a set program and in each case will commence at 10 a. m. and continue practically all day. Each tractor company will be allotted a plot of ground of equal size and as nearly as possible of similar character and condition. This is to be plowed and fitted. At various stages of the demonstration the machine will be stopped and an expert from the factory will explain the construction, working and maintenance of it. After the plots have been plowed and fitted an apportunity will be given for various drawbar exhibitions, such as the hauling of cabbage planters, manure spreaders, seeds drills, etc.

The demonstrations are not to be competitive in any sense but are intended to be supplemental to the tractor schools which were conducted throughout the state last winter by the New York State Food Commission and to give practical information to farmers in the use of tractors and such accomplishments as go with them.

St. Louis Gets Tire Thief

ST. LOUIS, June 17—More than $50,000 worth of stolen tires were recovered this week from the basement of a grocery store which was advertising "second" tires as a side line. Every tire in stock was a first. The grocer involved several railroad yard employees in his confession. Thefts of tires and other accessories from warerooms and freight cars have become more frequent recently, as the police lines are being closed on the car thieves.

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Big Tractor Demand in Missouri Wheat Belt

Unprecedented Harvest Acreage and Scarcity of Labor Stimulate Sales in Missouri River Towns

KANSAS CITY, June 15—An unprecedented demand for tractors for wheat harvesting is being experienced in the Missouri River bottoms between Kansas City and St. Louis this year. With wheat that will make up to 35 bushels to the acre, tractor dealers are finding difficulty in securing enough tractors to meet the demand for motive power for drawing grain binders.

Wheat being particularly heavy this season, the work of harvesting will be augmented and horse-drawn binders will have an uphill task. One binder propelled by a 9-18 or 10-20 tractor will make three rounds of a wheat field, while a binder drawn by four and five and even six horses makes two rounds of the same field, and the tractor can put in longer hours than the horses can, and besides any number of horses or mules put to a binder must be relayed at least twice a day because of the intense heat and humidity.

Immense acreage of wheat in the bottoms has given rise to big tractor sales at Hardin, Norborne, Carrolton, Keytesville, Booneville, Jefferson City and all other Missouri River towns. Scarcity of farm labor to handle horses is another reason for tractor sales on an increased scale, dealers in these sections say. These same tractors will be utilized in late July and August to break the same ground for the 1919 wheat crop.

Missouri has 2,250,000 acres in wheat this year as compared with 1,125,000 acres in wheat last year, and much of the increased acreage must be handled with tractors owing to the scarcity of farm labor, as well as to the scarcity of horses that are able to stand up under the heavy harvest work and long hours of the present harvest season.

Most of the tractor dealers in the Missouri River bottom land country stocked tractors early and they are reaping the benefits of their provision as they secured early deliveries and made sales from tractors stocked. The tractors that meet the largest sales are of the I. H. O. 9-18 type.

These tractors are too small to take the place of heavy rotary power for operating threshing machines, as they have to be of the all-work type to go over the bottom lands which are generally soft from rains and the heavier tractors can make but little progress under such conditions, while the small types go ahead surmounting all difficulties.

Good Used Car Demand on Coast

LOS ANGELES, June 15—The used car market here is on the boom. It is the consensus of opinion that with prices of new cars constantly increasing many purchasers will prefer high-grade used cars. Prices of used cars are being advanced rapidly on new cars. Some of these have been marked up as much as $200 in 2 months in order to keep pace with new car prices. This is possible, however, only where there is a steady demand for the cars.

There is such a sense in the security of the used car market in the future that many exclusive dealers are advertising extensively that they will pay spot cash for those they select. The new car dealer who a few months ago refused to take trades now welcomes the opportunity to get in stock as many cars in good condition as he can. This has resulted in a marked tightening up on the condition of cars accepted, however, and so-called liberal allowances are a thing of the past.

Fordson Wins All-England Championship

DEARBORN, MICH., June 14—According to a telegram received by F. Myers, tractor representative for Henry Ford & Son, in county Holland, England, the Fordson tractor serial number F 69 had won the All-England championship for the period ending April 6—this in spite of the fact that the tractor lost 5 days, the competition for the tractors starting before the Fordson arrived. The tractors worked on four separate farms.

During the 3 weeks and 2 days it was in commission, the tractor plowed, cultivated, etc., 470½ acres and the amount earned was £142 18s. The paraffin consumption was 2 6/7 gal. per acre. The tractor was worked by two soldiers who have been trained in the county and who previous to this had no experience in the working of tractors. They worked 12 hr. a day, including Sunday. The championship shield received by the men bears the inscription "National Food Campaign Champion Tractor of England and Wales." The championship shield will be held for 1 month.

San Diego Dealers Organize

SAN DIEGO, June 15—Sixteen of the leading dealers of San Diego have formed the San Diego Motor Car Dealers' Association. At a recent meeting the election of officers resulted as follows: President, E. P. Sample; vice-president, J. F. McKnight; secretary and treasurer, J. L. Joyce; directors, L. C. Maire, E. G. Davies, G. M. Alexander, C. W. McCabe, W. S. Smith.

The first accomplishment was to bring such pressure to bear on the city council that an ordinance designed to prohibit parking a car on the street in the effort to bring about its sale was defeated. The ordinance was amended so that any established dealer with a regular place of business could stand cars in front of the premises occupied by him.

Support was accorded the enactment of a new civil rights law under which all dealers use the same methods in doing business and are assured protection against fraudulent purchasers.

Los Angeles Car Dealers Turning to Motor Trucks

Passenger Car Shortage Compels Interest in Commercial Vehicle—10 Combination Dealers

LOS ANGELES, June 15—One of the most probable effects of the situation now confronting the passenger car dealers of this city will be to make them give more earnest consideration to the motor truck. In Motor World of May 29 appeared an article pointing to the passenger car dealer as the best truck dealer in which it was said: "The most logical truck dealer is the passenger car man who already has his sales and service organization and knows the automotive field."

To date "and knows the automotive field" has been the big stone in the highway to success of the combination passenger car and truck dealer here. Some of the most successful dealers in the passenger car field will admit they do not know the truck branch of the business. In the past, they have been identified with such quick-selling passenger cars that they have attempted trucks as a side line and have not gotten away with it. They have not taken the time to learn the field.

Trucks, on the whole, are slow sellers. Quick returns have been asked by passenger car dealers so no less than seven leading distributers in this city who have taken on truck lines in the last 2 years have subsequently dropped them. Included in this group are such dealers as Don Lee, Ralph Hamlin and Greer-Robbins, three of the ten most successful passenger car men in this part of the country. Each had the agency for a line of good trucks and all passed them up for the reason they could not divide their energies.

There are ten combination dealers here now. Three of them handle trucks made by the manufacturers of the same line of passenger cars they represent. One houses the trucks in a separate building and markets them through a distinct selling organization having no connection with the passenger cars. There are eleven exclusive truck dealers and three who have truck attachment agencies exclusively. Among these, the bulk of the business goes to those who are financially strong enough to carry their own paper.

Wire Wheel Repair Co. in New York

NEW YORK, June 15—A new note has been struck in the automobile business by the Wire Wheel Repair Co., 146 West Fifty-fifth Street, this city. It is the specialization by a completely machine-equipped and well-stocked organization to meet the demands and emergencies that arise out of the use of wire wheels. Alan C. McDonnell is president of the company.

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carburetor	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-62	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	$1595	....	$1595	$2150	$2150	....	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1145	$1095	....	....	1395	....	....
AMERICAN																	
B	6-3½x5	28.4	G & D	Zenith	G & D	DD	3	122	32x4	SS	1645	1595	1695	....	....	....	....
ANDERSON																	
20	6-3½x4½	25.3	Conn	Zenith	Wsths	DP	3	120	32x4	SS	**1465	....	....	....	2165	....	....
400-F	6-3½x5½	29.4	Bosch	Stmbg	Wsths	DD	3	120	33x4	SS	**1925	....	....	....	....	....	....
APPERSON																	
8-18 8th Anniversary	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	34x4 / 32x4½	SS	†2550	....	2550 / 3500	....	....	....	....
AUBURN																	
6-39-B	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	120	34x4	SS	1345	1345	....	....	....	....	1595
6-44	6-3½x5½	29.4	Delco	Rafid	Delco	DP	3	131	35x4½	SS	....	1685	1685	....	2450	....	1985
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142	34x4½	QD	3750	3750	4000	4550	5000	5250	....
BELL																	
18	4-3½x4½	22.5	A.Kent	Zenith	Dyneto	D	3	114	32x3½	QD	†995	995	....	....	....	....	....
BIDDLE																	
H	4-3½x5½	22.5	Eisman	Zenith	G & D	DP	4	121	32x4	QD	2600	....	†2650	....	4100	4000	....
BOUR-DAVIS																	
18B	6-3½x5½	29.4	West.	Stmbg	West.	DP	3	118	33x4½	QD	....	1785	....	....	....	....	....
	4-3½x5½	22.5	West.	Rafid	West.	DP	3	118	32x4½	....	....	1680	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	5500	....	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3½x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	825	825	....	....	....	....	850
BUICK																	
E 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	1185	1845	....
E 44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	....	†1695	....	....	1265
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	125 / 132	35x5	SS	2970	†2970	2970	....	3840	4160	....
CASE																	
U	6-3½x5½	29.4	Wsths	Rafid	Wsths	D	3	125	35x4½	SS	†1875	1875	1875	....	**2375	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wsths	DP	3	117 / 122	32x4 / 34x4	SS	1565	1565	1615	1625	1950	2925	....
CHANDLER																	
	6-3½x5	29.4	Bosch	Rafid	Wsths	DP	3	123	34x4	SS	†1595	†1675	1595	2195	2295	2895	....
CHEVROLET																	
490	4-3½x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3½	C	660	685	....	....	1060	....	....
FA	4-3½x5½	21.7	Remy	Zenith	A-Lite	C	3	108	33x4	SS	935	935	....	....	1475	....	....
D	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	120	34x4	SS	†1550	1550	....	....	....	....	....
COLE																	
870	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	33x5	SS	2395	†2395	2395	2495	2595 / 2795	....	....
COLUMBIA																	
C&D	6-3½x4½	25.3	A.Kent	Stmbg	W.Lnrd	DP	3	115	32x4	....	†1495	1450	....	....	2395	....	....
COMET																	
C-50	6-3½x5	29.4	Delco	Miller	Dyneto	DD	3	125	33x4	....	....	....	1285	....	....	....	....
COMMONWEALTH																	
4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	115	32x3½	SS	†995	1095	....	....	....	....	....
CROW-ELKHART																	
CE-36	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114	32x3½	SS	995	995	....	1295	1395	....	....
CUNNINGHAM																	
	8-3½x5	45.0	Delco	Stmbg	West	D	3	132 / 142	35x5 / 37x5	....	....	4250 / 4750	....	....	....	....	....
DANIELS																	
B	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	3500	3500	3500	....	....	....	....
DAVIS																	
H, I	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1585	1585	....	1850	....	....
J, I	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	125	34x4½	....	....	1950	1950	....	....	....	....
DIXIE FLYER																	
L835	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	1095	1095	....	....	1375	....	....

Model	Motor	S. A. E.	Ignition	Carburetor	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	$830	....	....	$1095	....	....	$865
B	6-3½x4½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	1150	$1150	*$1150	1650	$1650	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3750	3700	3750	....	5180	5250	....
MAXWELL																	
25	4-3½x4½	21.0	A.Kent	K D	Simms	C	3	109	30x3½	C	‡825	825	....	....	1275	1275 / 1175	935
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wsths	DP	3	136	35x5	QD	3900	3900	3900	....	5000	5050	....
MERCER																	
Series 4	4-3½x6½	22.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3850	*3850	....	....	....	....	....
METZ																	
25	4-3½x4	24.0	A.Kent	A.W.T.	Wsths	F	.	108	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.3	Remy	Rafid	Remy	C	3	120	32x4	SS	1350	1350	....	1900	2000	....	300x
C-42	6-3½x5	29.4	Remy	Stmbg	Remy	C	3	127	34x4	SS	‡1565	1625	1625	2210	2375	2850	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1750	1750	....	....	2280	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†2375	....	2375	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	110	32x3½	SS	995	995	....	....	....	....	....
J	6-3½x4½	25.3	Conn	Stmbg	Dyneto	D	3	117	33x4	SS	1295	1295	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	31x3½	QD	565	‡635	....	....	965	....	....
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x3½	QD	....	995	....	....	1850	....	....
MOON																	
6-36	6-2½x4½	19.8	Delco	Titan	Wagner	DP	3	114	32x3½	SS	....	1295	....	....	....	....	....
6-66	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1985	....	1985	2650	2650	....	....
MOORE																	
30	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	106	30x3½	....	695	....	....	....	....	....	....
MURRAY																	
	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	....	2800	2800	2800	3600	....	4000	....
NASH																	
682													1545	....	....	....	....
681-683	6-3½x5	25.3	Delco	Marvel	Delco	P	3	127 / 121	34x4	SS	†1395	1395	....	2085	2085	....	....
684-685																	
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafid	Wsths	C	3	128	34x4½	QDR	2450	†2450	2450	2945	3120	....	....
Twelve	12-2½x4½	39.6	Delco	Rafid	Bijur	C	3	128	34x4½	QDR	3150	†3050	3050	3545	3720	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	....	....	....
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32 4	SS	1050	1050	....	1550	1550	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1550	....	....	....	....
37	6-2½x4½	18.9	Remy	Johnson	Remy	C	3	112	32x4	SS	†1195	1195	....	1595	1695	....	....
OLYMPIAN																	
	4-3½x4½	16.9	Conn	Stmbg	A-Lite	D	3	112	32x3½	....	†1085	1085	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	112	32x4	SS	‡965	965	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Titan	A-Lite	C	3	104 / 106	31x4	C	835	850	†875	....	1340	....	....
85B6	6-3½x4½	25.3	.....	Titan	A-Lite	C	3	116	32x4	....	1195	1195	....	1420	1620	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.7						136			‡3950	†3950	3950	....	....	5000	....
W-42	6-4 x5½	38.4	Bosch	Zenith	O-M	OM	6	142	35x5	SS	....	....	5300	....	6300	6300	....
PACKARD																	
3-35								136			....	....	4300	....	....	5850	....
3-25	12-3 x5	43.2	Delco	Own	Bijur	DD	3	128	35x5	QD	....	3950	3950	5300	....	5500	....
PAIGE																	
6-39	6-3½x5	23.4	Remy	Stmbg	G & D	D	3	117	32x4	SS	1395	1395	....	....	1925	....	....
6-55	6-3½x5½	29.4	Remy	Rafid	Remy	D	3	127	35x4½	SS	....	....	1830	2850	....	3230	....

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DOBLE-DETROIT																			
	2-5 x4	....	Doble	Stmbg	Wagner	..	.	135	35x5	....	....	....	3750	....	....	....	....
DODGE BROTHERS																			
	4-3½x4½	24.0	Delco	Stewart	N.E.	D	3	114	{32x3½ 33x4	SS	935	985	....	1425	1425	....	....
DORRIS																			
6-80	6-4 x5	38.4	Bosch	Stmbg	Wsths	DD	3	122	33x5	SS	....	....	....	....	....	....	....
DORT																			
11	4-3½x5	19.6	Conn	Carter	Wsths	C	3	105	30x3½	QD	925	925	**1060	1325	1325	....	....
DOUGLAS	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	122	34x4	SS	...	2000	....	....	....	....	....
ELCAR																			
D.F.	4-3½x5	19.6	A.Kent	L-O	Dyneto	DP	3	116	{33x4 33x3½	SS	....	1095	1095	....	{1625 1795	....	....
	6-3½x4½	25.3	A.Kent	Stmbg	Dyneto	P	3	116	33x4	....	....	1295	1295	....	....	....	....
ELGIN																			
A	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	117	33x4	....	†1165	1165	....	....	**1645	....	....
EMPIRE																			
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS	1165	1125	....	....	....	....	....
70-A	6-3½x4½	25.3	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	....	1345	1375	....	....	....	....
73	.....	.....	.....	.....	.....	..	.	.....	.....	....	....	†1360	....	....	....	....	....
ESSEX	4-3½x5	18.2	Delco	Own	Delco	D	3	108½	32x4	....	....	1395	....	....	....	....	....
FIAT																			
E-17	4-5½x6½	44.1	Bosch	Zenith	Wsths	D	4	140	35x5	QD	....	....	5500	....	....	6500	....
FORD																			
T	4-3½x4	22.5	Own	{Holly Knysta	.....	D	2	100	30x3½r	C	435	450	....	650	785	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	33x4½	SS	3400	2450	†2450	....	3350	3400	....
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	....
GRANT																			
G	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	114	32x3½	....	‡1095	1095	....	1575	1595	....	1350
HALLADAY																			
S	6-3½x5	23.4	A-Lite	Zenith	Wsths	D	3	{120	34x4	SS	‡1375	1375	....	....	....	....	....
R	.....	....	.....	.....	.....	..	.	{122	....		1530	1530	....	....	....	....	....
HARROUN																			
	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....	....	895	....	....	....	....	....
HARVARD																			
4-30	4-3 x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	785	†985	....	....	....	....	....
HAYNES																			
25	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1850	....	....	....	....	....
39	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1950	....	1950	2660	....	....	....
44	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2910	....	2910	....	3460	....	....
HOLLIER																			
206	6-3½x4½	25.3	Remy	Stmbg	Splitdf	C	3	116	32x4	SS	....	1485	....	....	....	....	....
188	8-3 x4½	28.8	A.Kent	Stewart	Splitdf	C	3	116	34x4	SS	†1385	1385	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	34x4*	SS	....	†2050	1950	....	2750	3400	....
HUPMOBILE																			
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x4	....	1350	1350	....	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	950	1000	1025	....	....	....	....
JACKSON																			
249	8-3 x3½	28.8	A.Lite	Zenith	A-Lite	DP	3	118	34x4	SS	†1495	1495	1570	....	2195	....	....
JONES																			
27-ABC	6-3½x5½	29.4	Remy	Rafid	Wsths	DP	3	125	34x4	SS	†1875	1875	1875	....	2750	....	....
JORDAN																			
J-60	6-3½x5½	29.4	Delco	Stmbg	Bijur	DD	3	127	33x4½	SS	1995	†1995	1995	....	2750	5500	....
KING																			
F	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	....	†2350	2150	....	**2950	....	....
KISSEL																			
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1495	1495	1585	1935	1935	....	1935
Double-6	12-2½x5	39.6	Delco	Stmbg	Own	DD	3	128	34x4½	....	1585	....	2450	....	2850	....	2850
KLINE																			
6-38	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1495	1495	†1495	....	2200	....	....
LEXINGTON																			
6-O	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	....	1385	....	....	1545	....	....
6-R	6-3½x4½	25.3	Conn	Rafid	Wsths	P	3	122	34x4	QD	....	1585	1585	....	1785	....	....
LIBERTY																			
10-B	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1385	1385	....	....	1925	....	....
LOCOMOBILE																			
E-38	6-4½x5	43.3	Berling	B & Ball	Wsths	DD	4	129	37x5	QD	†5150	*5000	5000	....	....	6300	....
E-48	6-4½x5½	48.6	Berling	B & Ball	Wsths	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7300	....
LOZIER																			
84	4-4½x6½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	....	....	..
82	6-3½x6	36.0	Eisman	Rafid	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																			
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD	.	123	35x4½	SS	....	....	1650	....	....	....	....
MADISON																			
	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	{124 {120	34x4	SS	†1485	1485	1485	....	....	....	....
PAN-AMERICAN																			
G-5	6-3½x5	28.4	G & D	Rafid	G & D	D	3	120	33x4½	SS	....	1650	....	1950	....	1950	....
PATERSON																			
6-45	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	120	32x4	C	†1295	1295	1295	....	**1795	....	....
PERRLESS																			
56	8-3½x5	33.8	A.Kent	B&Ball	A-Lite	DD	3	125	35x4½	SS	†2550	....	2550	3050	3250	3600	....
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	34x4½	QD	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60.0	Bosch	Own	Wsths	C	4	147½	36x5½	QD	†6400	6400	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	23.4	Delco	Titan	Delco	DP	3	120	32x4	SS	†1395	1395	....	....	....	....	....
PREMIER																			
6-C	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	....	†2285	2285	....	....	....	....
PRINCESS																			
36-F	4-3½x4½	22.5	Splitdf	Schebler	Disco	D	3	108	32x3½	....	875	875	875	....	....	....	....
REGAL																			
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD	....	795	....	....	....	....	....
REO																			
	6-3½x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	1550	1550	....	....	....	....
	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	120	34x4	SS	1295	1295	....	....	....	....	....
REVERE																			
	4-4½x6	30.6	Bosch	Stmbg	Bijur	DD	4	130	32x4½	....	....	....	....	....	....	....	....
ROAMER																			
C-6-54	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DP	3	128	32x4	SS	2475	†2375	....	....	....	....	....
D-4-75	4-4 x6	25.6	Bosch	Stmbg	Bijur	DP	3	128	32x4½	SS	....	....	2475	....	3250	....	....
ROSS																			
	8-3½x5	33.8	.....	.....	W.Lnrd	DD	3	130	35x4½	SS	‡1850	....	1850	....	....	....	....
SAXON																			
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	935	1045	....	1395	....	....	....
SAYERS																			
SIX-42	6-3½x4½	25.3	Delco	.....	Delco	P	3	118	32x4	....	....	1395	....	....	....	....	....
SCRIPPS-BOOTH																			
D&H	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1285	....	....	....	....	....	....
G	4-3½x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	‡935	....	....	....	....	....	....
Six-39	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1195	1195	....	....	....	....	....
SIMPLEX																			
V	6-4½x6½	45.9	Eisman	Nwcmb	Bosch	D	4	143½	37x5r	QD	Chassis	7000	....	....	....	....	....
SINGER																			
	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	139	35x5	QD	4200	†4325	4100	....	5250	5125	....
STANDARD																			
G	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	....	†2450	....	2450	....	3500	4000	....
STANLEY																			
Steamer	2-4 x5	12.8	.....	.....	.....	..	.	130	35x4½	SS	....	†2750	2800	....	....	....	....
STEARNS																			
SK14	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS	†1935	1935	2175	2400	2575	3200	....
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	125	35x4½	SS	†2700	....	2700	3200	....	3575	....
STEPHENS																			
Salient Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	118	32x4	SS	1585	1585	†1650	....	2085	....	....
STUDEBAKER																			
SH-4-40	4-3½x5	19.6	Remy	Schebler	Wagner	C	3	112	32x3½	SS	1125	1125	....	....	1685	....	....
EH-6-50	6-3½x5	29.4	Remy	B&Ball	Wagner	C	3	119	32x4	SS	1585	1585	†1585	....	....	....	....
E-G-6	6-3½x5	36.0	Remy	B&Ball	Wagner	C	3	126	33x4½	....	....	1985	....	....	2185	....	....
STUTZ																			
S-7	4-4½x5	30.6	Delco	Stmbg	Remy	C	3	{120 130	32x4½	SS	2550	†2650	*2750	....	....	....	....
SUN																			
17	6-3½x5	29.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	....	....	....	....
TEMPLAR																			
A-445	4-3½x5½	18.2	Remy	Zenith	Remy	P	3	118	32x4	SS	2385	2085	....	....	....	....	....
VELIE																			
38	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS	1390	1390	†1390	....	1935	....	....
39	6-3½x5½	29.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS	....	....	1645	....	....	....	....
WESTCOTT																			
S-13	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1990	2290	2090	**2890	**2890	....	....
WHITE																			
16-Valve	4-4½x5½	28.0	.....	Own	L-N	P	4	{124½ {127½	35x5	U	†5000	....	†5000	6050	6050	6300	....
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Titan	A-Lite	C	3	121	34x4½	SS	....	....	1625	2275	2325	2425	....
88-6	6-3½x4	36.4	Remy	Zenith	A-Lite	C	3	125	34x4½	SS	†2550	....	2100	....	2800	2900	....
WILLYS																			
89-6	6-3½x5½	29.4	Conn	Titan	A-Lite	C	3	120	33x4½	SS	†1450	....	1450	....	1330	....	....
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	3150	3150	3200	4150	4400	4400	....
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3850	3850	3850	4850	5100	5100	....
WOOD'S																			
Dual Power	4-2½x4	13.1	A.Kent	Stmbg	Own	Mag	.	124	35x4½	QD	....	....	....	2950	....	....	....

*6-passenger. †4-passenger. ‡2-passenger. t-town car.
**Convertible.

ABBREVIATIONS—"A. Kent" Atwater Kent, "A-Lite" Auto-Lite, "B. & Ball" Ball & Ball," "Conn" Connecticut, "G & D" Gray & Davis, "Eisman" Eisemann, "L-N" Leece-Neville, "N. E." North East, "Nwemb" Newcomb, "O-M" Owen Magnetic, "Rafid" Rayfield, "Stmbg" Stromberg, "Splitdf" Splitdorf, "Titan" Tillottson, "Wsths" Westinghouse, "W. Lnrd" Ward Leonard, "D" Disk, "DD" Dry Disk, "P" Plate, "DP" Dry Plate, "C" Cone, "F" Friction, "G" Gearless, "CU" Control Unit, "Mag" Magnetic, "SS" Straightside, "QD" Quick Detachable, "C" Clincher, "DC" Detachable Clincher, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers. NOTE—37½x5½ r means that the rear tires are 37x5½ and the front are smaller. Detachable top, 300x, means $300 extra.

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Detroit Territory Needs Steel

DETROIT, June 15—None of the industries in this territory has received any official notification from Washington advising the supply of steel and iron would be cut off as a result of the action taken by the War Industries Board in agreement with the American Iron and Steel Institute. It is already understood by the industries that the entire steel supply of the nation is under absolute government control by priorities and this new order, if such has been issued, is interpreted by them as none other than the same thing.

The steel shortage began to be felt in April as evidenced by the decrease of production. All the manufacturers, however, did not suffer at the same time. Those whose supply of steel was great were able to maintain their production for some time before a decline in output was made manifest.

Viewing the situation as a whole the downward curve of production is not very marked, as some of the manufacturers have been able to maintain the same output for some time and those whose production of necessity was decreased do not show a very great percentage of reduction.

The Ford Motor Co. is still maintaining a production of 1550 cars a day; the output of the Olds Motor Works is now 100 cars a day where the company's production 2 months ago was 120—this decrease, it will be noted, is not very marked; the Willys-Overland Co. is turning out 425 cars a day—this reduction began only since June 1; production averaged 450 cars a day the month previous; Reo has maintained an output of eighty cars daily for some time; daily production of Packard is fourteen, which is the same as it has been for several months; Buick's daily output averages 300 cars; Cadillac, Chalmers, Maxwell and Hupp production has been at the same figures for some time.

While the passenger car manufacturers have felt some shortage of steel, the truck manufacturers in most cases have been able to increase their output; this is due to the fact that the government is encouraging the manufacture of trucks rather than endeavoring to curtail it. The call for trucks is coming from all quarters; nearly all manufacturers have orders for ten trucks for every one they can supply. Approximately 50 per cent of the trucks shipped are being used for war work directly or indirectly. This percentage is made up as follows: for ship yards, for use in transporting supplies to them, for use on the farms and for express lines in intercity transportation.

20,000 Goodyear Tires a Day

AKRON, OHIO, June 15—The Goodyear Tire & Rubber Co., now turning out 20,000 tires a day, is more than 2½ months behind in its tire orders. Total sales for the 6 months ending May 1, the first half of the fiscal year, exceeded $66,000,000, showing an increase of 40 per cent over the corresponding period of last year. A year ago the company had 300 women in its Akron plants; it now employs 3000 women there and that number will be increased to 5000.

Government Committee to Help Push Good Roads

WASHINGTON, D. C., June 14—The Government Highways Committee has been organized here. It comprises representatives from the War Industries Board, Fuel Administration, United States Railroad Administration, the Highways Transport Committee, the Department of Agriculture and the Motor Transport Service, U. S. Army. The chief object of the committee will be co-operation with the various states of the Union to better secure the construction of necessary highways. Logan Waller Page, Director Office of Public Roads of the Department of Agriculture, will head the new committee. Roy D. Chapin will represent the Highways Transport Committee. Lt. Col. W. D. Uhler will represent the Army. Other representatives will be appointed later this week. The many members represented in this committee expect to clarify many difficulties. The Fuel Administration will pass upon asphalt for example, the War Industries Board on cement, stones, etc., the Railroad Administration on transportation, the Office of Public Roads and the Highways Transport Committee on necessary commercial highways, and the Motor Transport Service on the military highways. The committee is now in a tentative form. A meeting will be held Wednesday, June 12, at which time the complete committee will be organized and its business defined.

92 Per Cent of Liberty Engines From Detroit

DETROIT, June 15—Detroit is producing 92½ per cent of all Liberty engines contracted for and at least one-third of the battleplane supply. according to a statement issued by the Detroit Real Estate Board. It is estimated that 19,000 Liberty engines will be completed in Detroit before Sept. 1, the contract time. It is also estimated that within 4 months Detroit will be producing not less than fiftv complete battleplanes daily. Automobile manufacturers are gradually working into a state of complete war work production in view of the edict that steel is to be issued only to war industries.

Government Plant for Airplanes

WASHINGTON, June 15—Organization of the United States Aircraft Corp. by the Director of Aircraft Production is proposed in a bill introduced last week by Chairman Chamberlain of the Senate Military Affairs Committee. The corporation would direct production of aircraft and equipment or materials therefore. It would be formed under the laws of the District of Columbia, with a maximum capital stock issue of $100,000,000. It would have the power to produce, purchase, manufacture or sell aircraft, aircraft equipment or materials therefor, and to build and operate railroads in connection. The government would control the majority stock. The corporation would be dissolved within 1 year after peace is signed. Enlisted men or commissioned officers would be detailed by the Secretary of War to work together with civilians, under the direction of the Director of Aircraft Production.

The Secretary of War would be authorized by the bill to transfer to this corporation any interest of the government in existing trucks for aircraft equipment or materials, and the title to lands, plants, railroads or equipment used in connection with the production of aircraft in which the United States has any interest.

Robert C. Hupp

NEW YORK, June 15—Robert C. Hupp whose death was announced last week in Motor World as having occurred at Cumberland, Md., was not the Hupp who has been intimately connected with the automobile industry for a number of years. He was an uncle of the same name but had never been connected with the automobile industry. Robert C. Hupp is at present living at Forest Hills Cardens, L. I., N. Y.

Moutier Leaves for Camp

PEORIA, ILL., June 15—Bertram G. Moutier, one of the proprietors of the Crown garage, will enter the service of the government as expert accountant at a large military repairshop at Camp Holabird, Md. He was given a farewell luncheon by the members of the Peoria Auto and Accessories Association at the University Club.

Coming Events

Racing

Chicago	Chicago Speedway	June 22
Cincinnati	Cincinnati Speedway	July 4

Show

Dallas, Tex.	Seventh Annual Texas Automobile Show Texas State Fair.	Oct. 14-27

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HORSELESS AGE, The oldest automotive paper published in the English language has been purchased by The Class Journal Co. Its merchandising features, and a part of its circulation, have been merged with MOTOR WORLD

MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Volume LV
No. 13

New York, June 26, 1918

Ten cents a copy
Two dollars a year

The Biggest Factor In Tires To-day Is Miller Uniform Mileage

"Uniform Tires are winning hosts of users"

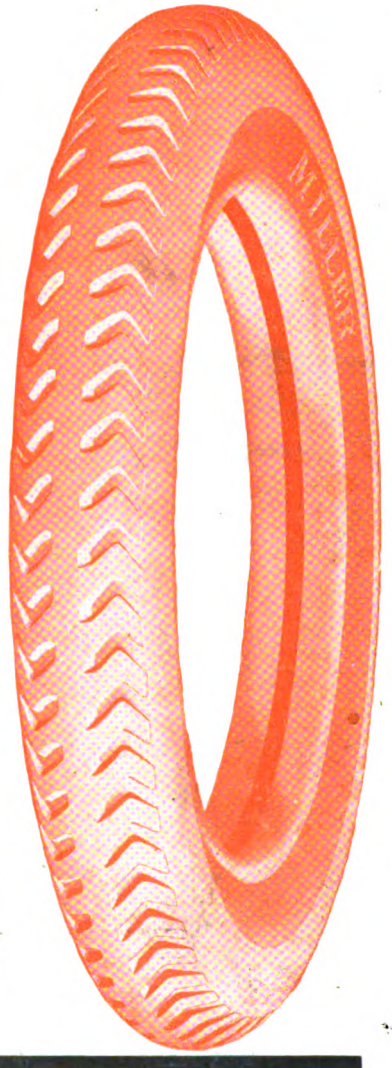
This is what motorists long have wanted—tires that run the same under like conditions. For who could tell when he bought a tire whether it would go 5,000 miles or fail at 1,000?

Miller Uniform Tires bring a revolution; 99 in 100 outrun standard guarantees.

Such uniformity has been the aim of all tire makers for years. Miller achieved it by training tire builders to be champions.

Now motorists are reading all about these Uniform Millers and they are turning to Miller Dealers at a surprising rate.

Opportunities are open for aggressive dealers in numerous localities. Write at once for our attractive proposition and a free copy of the Miller Analysis of Tire Trade Conditions. A remarkable survey of the tire business resulting from months of field investigation. Send for a copy while they last.



The Miller Rubber Co.

Dept. A-29 Akron, O.

Makers of Miller Red and Gray Inner Tubes — The Team-Mates of Uniform Tires

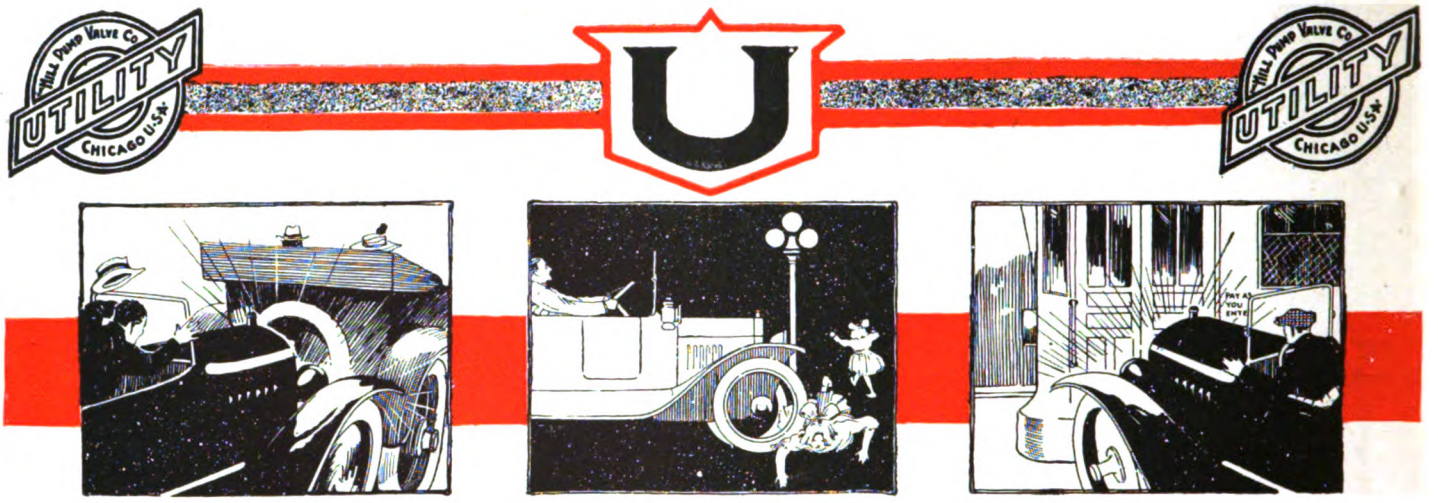
Miller UNIFORM MILEAGE Tires
GEARED-TO-THE-ROAD

Miller Tire Accessories are the life-savers of old tires and the "first-aid" to injured ones.

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All These Accidents Could Have Been Prevented by

The UTILITY SURE GRIP PEDAL for FORDS

Hundreds of Fords meet with accidents because the driver's foot slips off the pedal. The regular Ford clutch and brake pedal are small and smooth. Every driver knows that his foot often slips off the pedal and the danger of accident when this happens, and he knows too the certainty of a bruised ankle caused by the pedal springing up. The Utility Sure-Grip Pedal transforms the small, smooth Ford pedal into a regulation size, safe pedal. A flange at the side and a rubber gripping surface absolutely prevent the foot from slipping off the pedal, even when shoes are wet.

Why Take Chances?

It is foolish to run the risk of an accident when it costs only one dollar to supply a safeguard. In crowded traffic a slip of the foot from the pedal may mean jamming into the car ahead or smashing into a street car. This inevitably means at least an argument and perhaps later on a law suit. Is it worth taking chances when one dollar represents a safeguard?

A car is lucky if it comes out of the slightest accident with nothing more than a smashed fender—and this means a repair bill of more than one dollar—the price of a pair of Utility Sure-Grip Pedals.



Price Only $1 PER PAIR

DEALERS

The Utility Sure-Grip pedal has been demonstrated to a large number of accessory dealers, Ford dealers and Ford owners—**and there has not been one objection suggested.** This is very significant to dealers who are looking for a really popular and fast selling article.

Send for a sample pair and the agency for your community.

Hill Pump Valve Co.

Archer Avenue and Canal Street

CHICAGO ILLINOIS

District Offices: New York, 149 Church St.; Seattle, L. C. Smith Bldg.; San Francisco, 149 Montgomery St.; Kansas City, Rialto Bldg.

One Dollar Prevents Accidents

One dollar—the price of a pair of Utility Sure-Grip Pedals—absolutely prevents all accidents due to the foot slipping off the Ford pedal. No Ford driver can afford to take chances when the cost of prevention is so small.

Utility Sure-Grip Pedals are made of high grade pressed steel beautifully finished in black baked enamel and equipped with a heavy pad of highest grade rubber edged with metal. They can be attached instantly—no holes to drill—no special tools required—one nut to tighten and the job is done. **Once they are installed they absolutely cannot slip off.** Like all other Utility products manufactured by this concern, Utility Sure-Grip Pedals carry an unqualified guarantee of satisfaction. Send the coupon now.

HILL PUMP VALVE CO.
Archer Ave. and Canal St.
Chicago, Ill.

Enclosed is $1 for a pair of Utility Sure-Grip Pedals.

Name .....

Address .....

City ..... State .....

I am a dealer ☐
car owner ☐
(Check the one that applies to you.)

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MOTOR WORLD
DEALERS, JOBBERS AND GARAGEMEN

PUBLISHED EVERY WEDNESDAY BY

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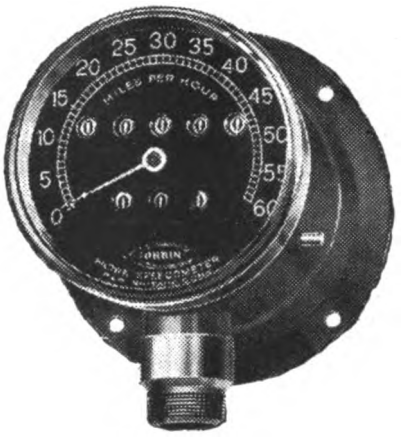
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Reliability

is the first requirement in every article of equipment on your car. You want to know that each fitment is going to wear well and function accurately. For that reason your equipment list should include the

CORBIN-BROWN SPEEDOMETER

The Corbin-Brown is reliable because its design is simple and correct; because only high-grade materials are used in its manufacture; because all parts are amply strong.

An important comfort feature is the Corbin-Brown Maximum Speed Hand. This extra fitting registers your highest speed and stays at that point until you reset it to zero, which can be done in an instant.

With the Maximum Speed Hand you do not need to take your eyes from the road to watch the speedometer while driving at a fast pace. Your speed record stands for inspection at your convenience.

Write for Catalog

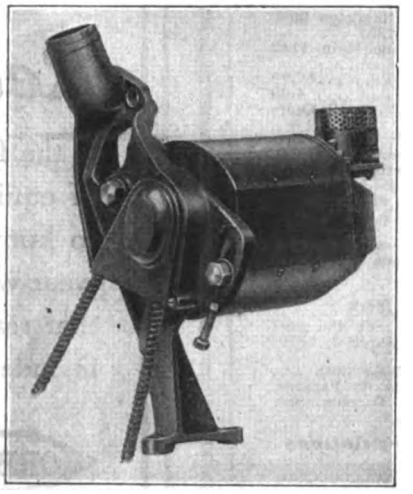
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Trade Mark

"It Starts Your Ford and Lights It Too"



Genemotor is not an "extra"—it is designed to be a part of the Ford Car. Anyone can install it in a few hours. Genemotor is the lightest, strongest, **best** Ford Starter. Hundreds of Ford Dealers sell it. Thousands of Ford owners endorse it. If there is no Genemotor agency in your city write today for complete sales plan.

Built by the General Electric Co.

Price $90 F.O.B. Lynn, Mass. Sold everywhere.

Prest-O-Lite Battery Standard Equipment

Send for 1918 Genemotor Catalogue

A. J. PICARD & COMPANY, Inc.

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MOTOR WORLD
for
DEALERS, JOBBERS AND GARAGEMEN

Vol. LV New York, U. S. A., Wednesday, June 26, 1918 No. 13

Support the Association That Is

FIGHTING YOUR FIGHT

The National Automobile Dealers' Association Wants Your Membership and Support

5000 MEMBERS IN 90 DAYS

MEETINGS SCHEDULED	
New York	July 1
Philadelphia	July 2
Pittsburgh	June 27
Detroit	July 1
Indianapolis (All Indiana)	July 9
Harrisburg, Pa.	June 28

THE National Automobile Dealers' Association is asking for the support of every dealer in the United States.

The association jumped into the breach last fall when affairs were in a chaotic condition and has done for the dealers of America what no other agencies had been able to accomplish.

To-day—June 26—President F. W. A. Vesper and a committee are before the Ways and Means Committee at Washington telling Congressmen the truth about taxation of motor cars.

About a year ago this association was instrumental in getting the proposed 5 per cent tax reduced to 3 per cent.

It has been working, working, working ever since for all the dealers in the country, and has been able to effect a co-operative 50-50 arrangement with the Government's Commercial Economy Board which will let the dealers make their own war-time adjustments instead of having these forced upon them.

During the past months the association officers have been so busy with war business matters that little attention has been paid to rounding the association into shape.

But now the officers feel the need of stronger backing if they are to continue the work. They need—

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Dealers of the New York City Territory:

FRED VESPER, who has championed the cause of the motor car dealers of America at Washington and elsewhere for nine months, is coming to New York Monday, July 1, to tell what the government wants the dealers to do.

He has a big message. He will tell things that haven't been printed—and probably won't be printed.

He will outline the plan that has been agreed upon by the government and a War Service Committee of which he is the head, and which plan affects the business of every dealer in the country.

In addition to telling you of this work he is going to ask your support.

For the work he has done you owe him your attendance at the meeting, even if you do nothing but listen to his story.

The meeting will be held at 12.30 noon, Monday, July 1, at Reisenweber's Restaurant, Eighth Avenue and Fifty-eighth Street.

This is not something that can be delegated to an assistant. This meeting should be attended by the head of every car-selling establishment in New York, Brooklyn, the Bronx, and every town within 100 miles of New York.

Notify at once by telephone or wire Manager Charles A. Stewart of the New York association at the Hotel Woodward, Broadway and Fifty-fifth Street, how many from your company will attend. Phone Circle 450.

above all other things—MEMBERSHIP. An association made up of only a few men has no influence—and influence is going to be needed

Wherefore, President Vesper and the directors have instituted a membership campaign drive, and that they may devote their time to matters in Washington and to their own businesses, have engaged E. E. Peake, secretary-treasurer of the Kansas City Motor Car Dealers' Association and president of the National Association of Automobile Show Managers, to follow the campaign through.

To let the dealers everywhere know what the association has done, is doing and plans to do, meetings are being held in various centers, to which the dealers are invited from the surrounding country. These meetings are to be addressed by President Vesper, Executive Secretary Peake and other officers.

Meetings have been arranged in New York, Pittsburgh, Detroit, Harrisburg, Indianapolis, which includes all the Indiana dealers, and Davenport, Iowa, and numerous other cities have meetings nearly fixed. A circuit of meetings will be staged in Ohio, there will be one in Philadelphia, one in Boston, one in Minneapolis and others in the other cities, both large and small.

Some cities have already sent in their total membership as members in the N. A. D. A. or have said this action would be taken at the next meeting. These include Detroit, San Francisco, Syracuse, Utica, Youngstown, Waterloo, Iowa, St. Joseph, Mo., and, in addition, others which had given their memberships before the 5000-in-90-days campaign began. These include Chicago, Kansas City, Minneapolis, Denver, Louisville, Des Moines, Atlanta, Memphis, Milwaukee, Oklahoma City, and others.

The association has many of the big city dealers. It must have them all. And in addition it must have the small town dealers. It must have representation everywhere, else it will not be a NATIONAL association.

It requests the dealers in the distributing centers to name a committee of its five fastest working men. These men are to name a chairman and a committee of the five livest men in every county. These county committees are to get all the dealers in the county to support the association.

All that is required is that each dealer send a letter of application with $15—$5 for membership fee and $10 for dues—and thereafter the dues are but $10 a year.

President Vesper says: "This association needs YOUR membership to help it safeguard YOUR business." It is a business insurance of less than three cents a day.

Dealers everywhere should at once get the machinery for membership in their sections into motion.

Get in touch at once with President F. W. A. Vesper or Executive Secretary E. E. Peake at 3550 Lindell Boulevard, St. Louis.

While waiting for the meeting to be held, or for your territorial committee to get to work send in your letters or application blanks and checks for $15 to headquarters now.

Nothing is gained by waiting. Members are what are wanted. The membership roll is beginning to swell. The biggest cities in the United States are in—and coming in every day.

Get action right away. Don't "wait for Vesper or Peake." A few men have been carrying the load for months. Let the rest of us get under now and hop it over in a real American automobile way.

This is the BIGGEST BUSINESS BEFORE THE AUTOMOTIVE TRADE OF AMERICA TO-DAY.

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Vesper and Aides on Way to Washington

To Meet Ways and Means Committee of House and Present Dealers' Story

ST. LOUIS, June 24.—A committee representing the N. A. D. A. will appear before the House of Representatives Ways and Means Committee Wednesday to discuss a proposed tax of motor cars, gasoline and accessories. The appointment was obtained from Chairman Claude Kitchin of the committee by President Vesper, following a discussion of the situation by the motor car dealers in Chicago a week ago. At that meeting the appointment of the committee was authorized.

President Vesper took the question of a hearing up with Chairman Kitchin, and on Thursday received notice that the motor car dealers would be heard June 26. President Vesper has received pledges from the following to be present. They represent several phases of the selling organization: F. W. A. Vesper, president of the N. A. D. A., St. Louis; E. E. Peake, executive secretary of the N. A. D. A., Kansas City; Walter D. Meals, Cleveland; E. W. Steinhart, Indianapolis; H. B. Harper, Philadelphia; C. C. Coddington, Charlotte, N. C.; N. A. Reddick, Scotland Neck, S. C.; H. C. Finchel, Winston-Salem, N. C.; J. S. Donovan, Boston.

Preliminary Meeting in New York

NEW YORK, June 25.—Preliminary to meeting the Ways and Means Committee of the House of Representatives in Washington to-morrow, President Vesper of the N. A. D. A., and other members of the special committee, are holding a preliminary session in this city to-day. The committee will leave for Washington to-night.

From Washington, Vesper and Executive Secretary Peake will go to Pittsburgh for an association meeting Thursday night, and from there to Harrisburg for a meeting Friday night. They will remain in the East until next week for meetings in New York, Philadelphia, and other cities.

Many Cities Joining

ST. LOUIS, June 24—The following local motor car dealers' associations have been enrolled 100 per cent in the N. A. D. A. during the past week:

Utica, N. Y.; Rochester, N. Y.; San Francisco; Springfield, Mo.; Waterloo, Ia.; Seattle, Wash.

Cincinnati and several other cities have reported the prospect for 100 per cent membership soon but the final reports have not reached President Vesper's office.

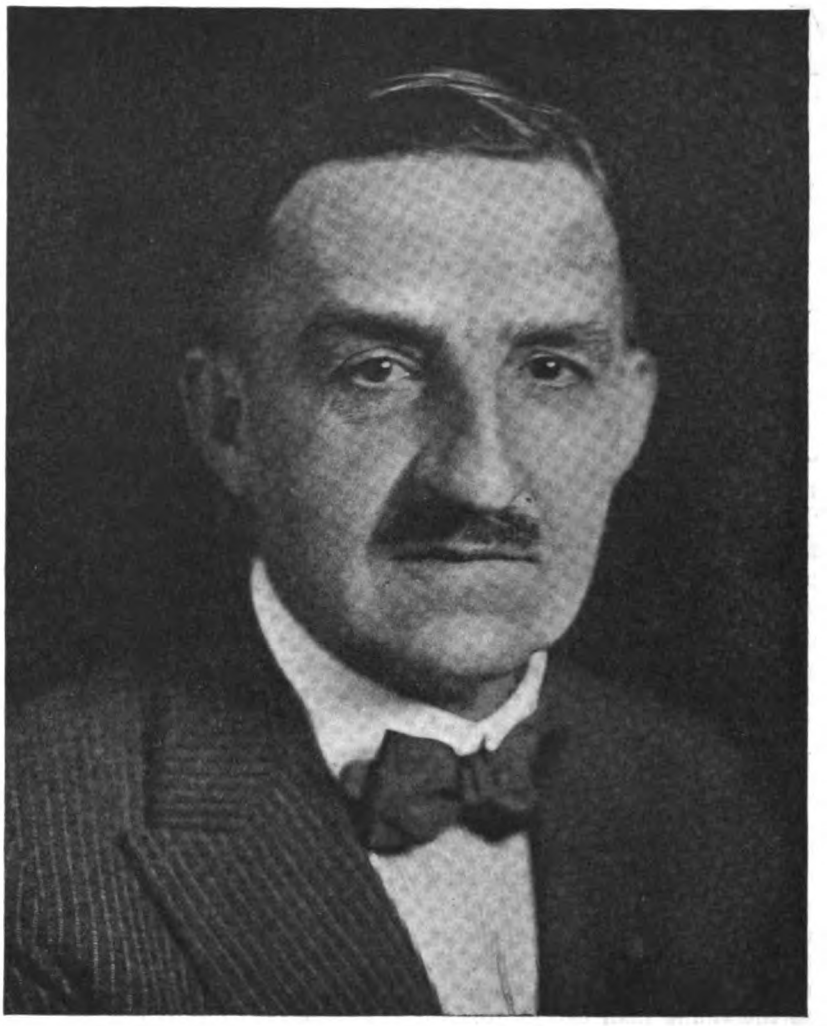
The exact membership to date has not been made public but it is no secret that it has passed the 1500 mark and the enthusiasm is growing. For the first few weeks after President Vesper took charge there were hardly any associations that came in 100 per cent and the new members were obtained chiefly as the result of solicitation of local dealers by St. Louis distributers and the distributers in other cities who were early members of the N. A. D. A.

Then the work began to reach the associations in the various cities and now there are members on the rolls from almost every state and every day small town dealers are sending in their memberships with an expression of a desire to do their part in the great work of consolidating and protecting the motor car business.

It also is expected that the campaign began by E. E. Peake, the recently named executive secretary, when well under way will bring results rapidly. The influence of Peake's work already has been felt.

Despite the missionary work done so far, it was learned at the Chicago meeting that many officers of local associations were until then not entirely familiar with the plan and the early accomplishments of the N. A. D. A. President Vesper has known that this was the case and he realized after the Chicago meeting that the opportunity for reaching these men had come co-incidentally with the emergency that caused the meeting in that city.

Since that meeting, although but one week has elapsed; the influence of the spirit shown there has been felt in the membership applications.



F. W. A. VESPER

President of the National Automobile Dealers Association and Buick dealer in St. Louis, who leads a campaign for 5000 members in 90 days

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SALESMEN Made to Your Order

Salesmen are hard to get. Hiring a topnotcher is almost an impossibility — yet Champion has 67 of them, and this story reveals the company's man-building secrets.

A YOUNG man who looked as though he might be from almost any walk in life sat in the anteroom of the Champion Spark Plug Co.'s offices in Toledo.

He was in the waiting room looking over magazines, trade papers, catalogs and other things, and the young man thought that he was being required to wait because the man he was waiting to see was too busy to see him. The young man was partly right and considerably wrong, because the waiting period he was undergoing was a part of the observation being made of him as an applicant for a position on the selling force of the company.

Now and then, while the young man waited, Sales Manager F. B. Caswell took a look at him. Once in a while the young man looked up. At no time did he smoke cigarettes or do any of those things which might prejudice his prospective employer against him.

"He has an alert eye," said Caswell.

"What do you mean?" inquired the man addressed.

"Oh—just look at his eye," replied Caswell. "It is hard to explain what I mean, but if you will watch this young man you will notice that his eye is very alert. It is quick. He is observing. I think he is a fellow who will take hold quickly and grasp our ideas and become a good man. He doesn't seem to be a type of man on whom we will have to spend a lot of time and attention. If he is all right otherwise, I should say he probably could do good work for us."

Hiring men is not done by hit-or-miss methods—which too often are hit-AND-miss. One of the first tests, after a man seems to be satisfactory, is that he undergo a complete examination by one of Toledo's best physicians.

Once upon a time the company found it had taken a man with a serious physical defect—and from that day the examination method was applied. The report turned in by the physician covers about every possible point. If there are remediable defects such as bad teeth the man is overhauled—and every six months he is inspected and overhauled again. Bad teeth and their accompanying indigestion and bad breath have cost industry thousands of dollars through lost sales—and the loss has been as much the salesman's as the company's.

Y. M. C. A. Memberships

Furthermore, the company sees to it that each man is given every opportunity to keep himself physically and mentally fit. A Y. M. C. A. membership is given to each man. He has the association's gymnasium privileges in each city he makes, and is requested to report frequently on his condition on a Y. M. C. A. Physical Report such as is shown with this story.

Each man is also provided with a card of Busy Man Exercises which enables him to exercise in his room. Thinking he was unobserved one morning on a train, Caswell exercised a bit between two of the as yet unmade berths of the car. But a woman saw him and rushed to the porter to report that there was a crazy man aboard.

Each Man Studied

A study is made of every man—and the men are taken from the most varied walks of life. Caswell sets a high standard and requires that his men be men of integrity. This last statement is made as introductory to the next, which is that one day Caswell was in one of America's famous summer resorts where sight-seers often go to see the roulette wheels spin. Back of the wheels stood a young man. Caswell watched the man, and the man watched Caswell.

When things got dull Caswell engaged the man in conversation—and to-day this young man is one of the most successful men on the Champion sales force.

What was there about the young man which attracted this sales manager?

The principal attraction was that the young man seemed to know human nature. He had been back of the roulette wheels for only a short time, and had taken the position simply because he was out of a job, and this was the first one that turned up and provided the money that he needed.



F. B. CASWELL

Sales Manager of the Champion Spark Plug Co., who sold Champion plugs on the road when he was the only salesman the company had and he sold the whole output. He looks a trifle gruff in this picture — but he isn't. Ask any one of his 67 champions

The experience that he had gained there had developed a previously existing ability to size up human beings, and this Caswell, the student of men, soon discovered. The young man readily embraced the opportunity to go with the Champion company, and his name isn't mentioned because he isn't at all desirous of dragging into his every-day affairs the fact that he once spun the pill in a hardwood saucer in one of America's famous gambling establishments.

From Many Fields

Other men have come from the real estate field, and from fields too varied to mention. About the only man who hasn't made good, according to Caswell, is a man who used to be a barber. The fact that he was a barber is not the reason he didn't make good, but he may have acquired a money-borrowing habit while he was at the same time separating people from their hair and whiskers.

He borrowed money—everywhere. He borrowed money from all the people he came in contact with in the Champion organization. He borrowed it from the trade, and he got to be such a borrower that his borrowing ability over-balanced

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his sales ability and they had to let him go. A second offense at borrowing money from anyone means dismissal.

In these days when everyone is wondering where they are going to get good salesmen, the story of how the Champion company gets its men may be of interest. It doesn't go out into the field and hire salesmen. *It goes out first and hires the man.* If the man happens to be a salesman, all well and good, but *the first requirement is that he be a man,* and if he has manly qualities and good fundamentals, and is physically fit, the making of a salesman isn't regarded as a difficult job.

Building Every Day

This building and rebuilding has gone on for several years until to-day the organization that Caswell watches, guides and directs consists of 67 men. Most of them are young men. Practically all of them have good habits. They are all becoming better men every year. They are all selling more of the Champion products every year, and the system has been operated with such success that to-day the Champion company is one of the largest corporations in the United States and leads its field in production.

There are certain steps a young man takes when he applies at the Champion plant for a position, but no matter what step he is taking he is watched and observed all the way through. No matter how much he may try, it is very difficult to cover up any inherent bad qualities. They are found out by those little observation points that the man himself doesn't know about. They are known only to those who are observing him.

The young man in question, at the beginning of the story, sat for a while in the waiting-room. A man is placed there to see what he does. If he idles his time and smokes cigarettes while waiting, it is considered a bad point. If he picks up the company's catalog or some of the trade papers or other worth-while material there and begins to read it, it is considered a good point. A man can do much to hurt or help his cause by what he does during the first few minutes he has to sit in the waiting-room.

After that he meets some of the people connected with the firm, and goes through the immense factory. Then he is taken to the engineering department, and to the advertising department. He then has a session in the sales department. The goods are explained to him. One day is spent in Detroit, one day in Chicago, and days at other factory headquarters points. The policy of the house is outlined, and work is done that is fundamental to his success upon the road.

If he comes through these preliminary stages in good shape, he is sent out on the road in company of a man—one of the experienced men of the sales organization. He is kept out on the road for a week or two, and then he is given a turn on the road all by himself. After this first road experience he is called into the factory and the sales manager checks him up on the extent to which he has retained the ideas which were conveyed to him during the preliminary period.

One of the tests is of the mettle and even disposition of the man. Sometimes when he calls to see the sales manager he is kept sitting on a bench *all day long.* If he loses his temper, becomes discouraged and presents a poor appearance when he finally gets in to see the sales manager, he has revealed a point that must be remedied before he can be a successful salesman. He is taught that he must never lose his temper, that long waits must not get on his nerves and that he must always be master of himself.

Men who have had chemical or a newspaper training are considered as having the fundamentals of good salesmanship in that they have been taught investigation. The chemist has been taught to analyze materials and find what is in them. The newspaper man has been taught to analyze situations and to dig to the bottom of everything for all the facts there are in connection with it. This quality in a salesman is considered highly desirable.

"Most men," states Caswell, "analyze, but they don't go far enough." He cites as an example: He was leaving a hotel in Detroit, one day, and requested one of his salesmen to meet him at the ferry at a certain time with a bag. He intended to pick up this salesman and the bag and go to the railroad station. The salesman, however, for some reason or other thought that, after the length of time he had waited, the sales manager might not show up, so he took the bag and went on to the railroad station.

The result was that there was confusion and delay, and he very nearly missed connection on the train.

"The average man," says Caswell, "analyzes, but he doesn't go to the last link in the chain. He doesn't go far enough. He doesn't depend sufficiently upon his own initiative and responsibility.

Some Lack Loyalty

"Some men," he states, "lack what may be considered loyalty or else plain common-sense. They do not attach sufficient importance to the relations that exist between themselves and those by whom they are employed. They are put out in charge of territories, but do not assume the responsibilities of a territory manager. They are lacking and *they consider themselves* 100 *per cent efficient if this lack is not discovered by the house.*"

One Champion man years ago had just been married. His home was in Indiana. His territory was in Iowa. He was not supposed to jump to his home town every week end, but, being young and still somewhat enthused with the novelty of domestic life, was prone to leave his territory uncared for and run home whenever he got a chance.

One day Caswell was in Marshalltown, Iowa. He told this particular man that he would meet him at a certain time in Grinnell. On the last passenger train on which the engagement could be kept Caswell failed to show up, so the young salesman promptly jumped the territory and went home. But he hadn't become

(*Continued on page* 49)

Busy Man Exercises

from

TOLEDO Y. M. C. A.

1. Raise on toes, raising arms to overhead, inhaling and exhaling.
2. Swing arms in large circles.
3. Hands on hips—squat as low as possible.
4. Arms overhead, bend from hips keeping knees stiff—touch floor.
5. Legs spread, knees stiff—touch floor behind feet, twisting body.

LYING ON BACK

6. Raise both legs high, keeping knees stiff.
7. Legs straight in air—bring knees down to chest and then straighten legs.
8. Keep heels on floor—raise body to sitting position.
9. Lying face downward, hands at side of chest—push body up until arms are straight, then lower to floor.
10. Stationary run—breathing.

Start out doing each exercise a few times, increasing the number of times each day until doing each 15 to 20 times.

Take these exercises upon arising in the morning or before going to bed at night. Never exercise immediately after meals. Take a cool shower or sponge bath and brisk rub with towel after exercise.

Be regular in all your habits: meals exercise, sleep, drink plenty of water and keep the bowels open.

DON'T OVER-DO YOUR EXERCISE, and don't stop after a short trial, but keep them going month after month.

W. B. COUGHLIN
Physical Director

Name _____

CHAMPION SPARK PLUG CO., TOLEDO, OHIO

Y. M. C. A. Physical Report

W. B. COUGHLIN, Director

Events	No. or Distance	Points
Push Up		
Pull Up		
Squat		
Standing Broad Jump		
12-lb. Shot Put		
Swimming		

RULES FOR EVENTS.

PUSH UP:—Back arched — no part of body touching floor except hands and feet—lower until chest touches floor—Counts 5 points for each push up.

PULL UP:—Chin must come above bar each time—arms straight when body is lowered—Counts 5 points for each pull up.

SQUAT:—Must be done with hands on hips—Counts 2 points for each squat.

STANDING BROAD JUMP:—Regular Rules—Counts 2 points for each inch over 6 feet.

SHOT PUT:—Regular Rules—Counts 1 point for each 3 inches over 18 ft.

Above Marks verified by _____

_____

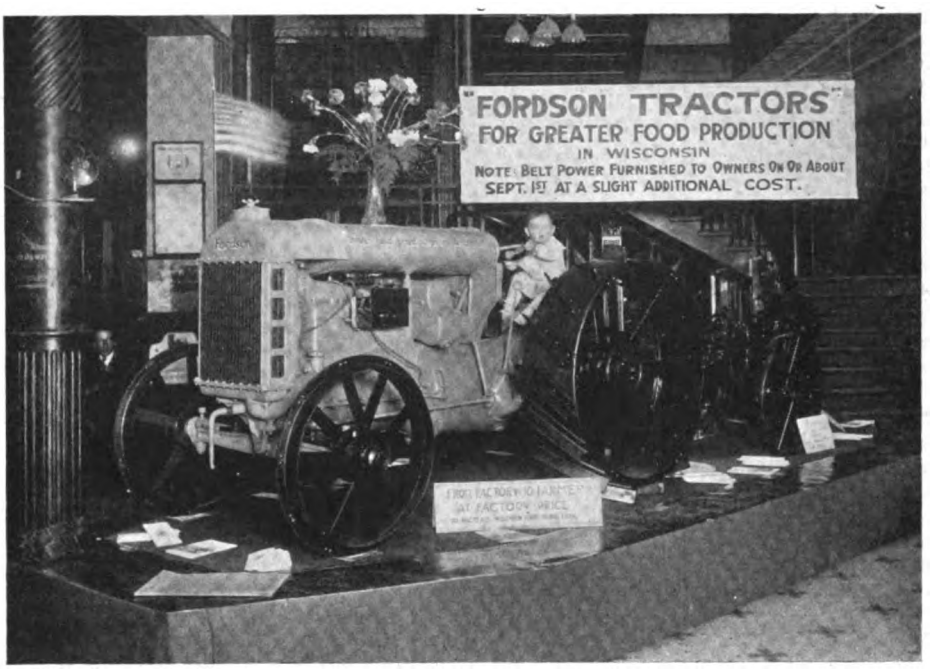
City _____ Date _____

Y. M. C. A. Physical Director please certify work done

The Busy-Man Exercises enable the Champion men to maintain good physical condition even though they never get near a gymnasium. The Y. M. C. A. report cards are sent to the home office from time to time, where they are compared by Sales Manager Caswell. If a card shows that a man is falling off he is at once given attention, for the company realizes only too well the relation between physical condition and sales results

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One Day's Work — 364 Tractors Sold



By way of preparation, Meiklejohn staged an exhibition including the Fordson tractor and an Oliver plow in the lobby of one of the most prominent hotels in Fond du Lac, Wis.

The Plan That Helped Meiklejohn Put It Over

WHEN Henry Ford & Son, Dearborn, Mich., suggested to T. W. Meiklejohn, president and manager of the Service Motor Co., Fond du Lac, Wis., Ford distributer, that he act as the medium through whom 500 Fordson tractors be put into the hands of the farmers of Wisconsin at factory cost, and thus at no profit to him, he did not hesitate, but took the first train for Detroit.

He asked Ford what he was expected to do and whether any of the other state distributers had done anything notable which might serve as a model for him. Ford explained to him what it was he wanted him to do in Wisconsin and said that one state distributer had secured orders for 35 cars of tractors within a single week. This certainly was going some, and while Meiklejohn did not hesitate in expressing his willingness to undertake the distribution in his state he did so with a mental reservation that he would have to hump if he beat the 35-car-a-week record.

He admitted to himself that that was some stunt and had set a pace which it would be hard to equal and still harder to surpass. However, he was a man who was willing to try anything once; so, saying nothing about his perturbation of mind to Ford, he started back to Fond du Lac to make plans which would at least equal in results his co-state distributer.

So well did he plan, and so responsive was the enthusiasm which he succeeded in arousing among his fellow Ford dealers in the state, that on the day of his first demonstration, May 11, at Fond du Lac, he actually took orders for 52 cars of tractors, or 364 tractors in all, and got the money for them in advance. This was something like $324,000, for each order for a tractor included also an order for an engine plow to go with it. Two clerks from the Commercial National Bank in Fond du Lac were busy all day in a room at the Palmer Hotel receiving, receipting for and entering the checks.

Henry Ford Bawled Him Out

And Henry Ford, entirely ignoring the orders for 52 cars, "bawled him out," because at the demonstration Meiklejohn had failed to invite competing tractors to display their prowess alongside the Fordson. Now, what do you think of that?

Realizing that he had some job on his hands when he got back from Detroit, the first thing Meiklejohn did was to resign from the Service Motor Co. in order to devote his entire time to the tractor business. He opened an office in the Palmer Hotel, sent to Milwaukee for Ira W. Mabie, who was wholesale manager at the Ford branch at Milwaukee, to join him, and at once the two opened a campaign of publicity.

First he determined to arouse the interest of the Ford dealers of the state and secure their co-operation. He wrote and had printed some convincing literature, which he mailed to every Ford dealer in every county in the state where a tractor be considered at all practicable. This literature explained the patriotic motive behind the projected distribution of 500 Fordson tractors to as many farmers at factory prices and without profit to state or local distributer, emphasized the necessity for equipment to increase the Wisconsin farm food products, explained the plan upon which the tractors were to be distributed and told the dealers what they would have to do in the way of financing a shipment in case they decided to assist. Mr. Meiklejohn, knowing there was inspiration in numbers, decided upon a big demonstration of the Fordson tractor at Fond du Lac on May 11 and issued an invitation to all the Ford dealers to be present on that occasion.

The Chamber of Commerce of Fond du Lac, scenting an opportunity to get into the band wagon for the glory of the city, of its own initiative and at its own expense, at once had printed a poster, 24 x 36 in. in size, in red, white and blue, an-

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nouncing the demonstration and endorsing it, which within a day after its appearance shared wall space all over the state with Liberty Loan and Red Cross posters. Incidentally it may be mentioned that the official endorsement of the Fordson distribution by the Chamber of Commerce of Fond du Lac is the only official endorsement of any kind which Meiklejohn received. Except for a letter of appreciation from Governor E. L. Phillip of Wisconsin, the state took no official cognizance of the matter.

Hotel Exhibit Staged

In the way of local preparation for the event Meiklejohn secured space in the lobby of the Palmer Hotel for the display of a tractor and plow, covered the walls of the lobby with banners of patriotic and business import, swung an immense banner across the street between the hotel and the opposite side, engaged a band or two and then sat down to wait with what patience he might for May 11.

Meantime the other tractor dealers in Fond du Lac, numbering something more than half a score, alarmed at the elaborateness and effectiveness of Meiklejohn's preparations, incensed because of the endorsement of the Chamber of Commerce and enraged at the prominence given to the tractor occupying its dais in the lobby of the hotel, got together and entered a protest. The Chamber of Commerce bluntly informed the protestants that of all the tractor dealers in Fond du Lac Meiklejohn was the only one in the whole bunch who had been a regular and consistent member of the Chamber of Commerce and the only one who had kept up his annual dues continually; hence he was entitled to some consideration, especially when he was engaged in a patriotic movement which would redound to the glory of the town. The proprietor of the hotel told the committee that if any one of them had a machine which would attract as many visitors into the lobby of the hotel as did that one which already was there to bring it along and room would be found for it. Thus the protest died aborning and the day of the demonstration drew nigh.

Demonstration Drew 3500 Farmers

Between 3500 and 4000 people attended the demonstration. In inviting the dealers to come Meiklejohn had insisted that each bring at least ten farmers with him. Some of them exceeded this limit—one brought 47. So the crowd, while abundantly leavened with dealers, was preponderately a farmer crowd.

In every way the demonstration was a success. The Fordson tractor was shown plowing, harrowing with disk and with spring tooth harrows, demonstrating its hauling capacity and its road speed, and so forth. Nothing was left undone to make every visitor entirely satisfied that he had seen what the tractor would do under familiar farm conditions.

So successful was the demonstration and so well pleased were the farmers who attended that the Ford dealers present saw at once that a popular move on their part would be the buying of a car of tractors for their respective communities. In anticipation of such a result Meiklejohn had made previous arrangements with the bank to have clerks at the headquarters at the hotel to facilitate matters. The selling of 52 cars already has been mentioned as the phenomenal result of this demonstration.

While in all essential features the plan pursued by Meiklejohn in handling the Wisconsin distribution is the same as that followed in Ohio, Iowa and some of the other states, still it presents distinct features of difference in some respects. For instance, Meiklejohn has made it conditional that every farmer who purchases a Fordson tractor shall also purchase an Oliver No. 7 plow. This is a condition which has been imposed by no other state distributer.

Farmer Pays the Charges

Again, the farmer, when he signs an order for a tractor, agrees to pay not only the freight from Dearborn, Mich., but also an unloading charge of $5 and a service charge of three $5 amounts. The unloading and service charge, aggregating $20, goes to the dealer, and from it he gets what compensation he can for his trouble and expense, since on the tractor, at $750, and on the plow, at $140, he makes no profit whatsoever. In cases where the dealer sells a Lean harrow in addition to the plow he receives 20 per cent on the price of the harrow, $146.

Before a dealer is recognized as a possible local distributer he must deposit in the Commercial National Bank at Fond du Lac a certified check for $6,230. This check is made payable to T. W. Meiklejohn, but is held in escrow by the bank until the dealer receives seven tractors and seven plows.

Will Concentrate on Tractors

Meiklejohn has gone into the tractor business permanently. As stated previously he has resigned all connection with the Service Motor Co. and will organize another company for the sale of the Fordson tractor and Fordson equipment. He is at present building a warehouse, 40 x 200 ft. in size, which will be used exclusively for this business. The warehouse is on a building site given him by the railroad, and which affords ample room for future expansion. As soon as the distribution of the original 500 allotment is completed he will begin making contracts with dealers for territory for future trade. It is significant that he will confine his efforts principally, if not exclusively, to the Ford dealers in Wisconsin. As Meiklejohn will handle in a wholesale way the operative equipment already approved by Ford and all that ultimately will receive his approval, and inasmuch as this same equipment will be sold by the dealers whom Meiklejohn appoints, the result will be the development of a distinct class of automotive dealers in the state.

"We are going to give better service than any other tractor concern in the state," says Meiklejohn. "This will apply not only to our local trade but to our trade throughout the state. For instance, we have issued positive instructions to every dealer who has bought a car of tractors not to make a delivery nor attempt a demonstration until we can get there to show him and to instruct his farmer customers. In the very beginning we had a few dealers try to get across with a demonstration without such instruction and they fell down. We do not intend to have a repetition of such a mistake."

Alton Dealers Organize

ALTON, ILL., June 21 — The Alton Automobile and Accessory Dealers' Association has been organized here with 14 member firms. The following officers were elected: President, H. T. Horstman, Alton Auto Co.; vice-president, L. T. Hudson, Wagner Motor Car Co.; secretary, C. T. Yaekel, accessory dealer; treasurer, E. C. Hoefert, Dodge Bros. Motor Car Co.; directors, Christ Schuette, Bluff City Auto Co.; W. E. Winter and C. G. Luft.



Meiklejohn's service men travel in Ford coupes and take the service right to the farmer's backyard—which is what the man is doing in this picture

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Farm Comfort *and* Dealer Profit

How One Farm Lighting Dealer Follows the Sale of Farm Lighting System by Those of Vacuum Cleaners and Washing Machines

IF someone were some day to move into the salesroom of an automobile dealer a lot of washing machines, vacuum cleaners and other household apparatus of that kind, a dealer might be rather indignant to see his ornate establishment so cluttered up with wares of this kind.

This may have something to do with the frame of mind of so many dealers considering the handling of farm-lighting systems and the appliances that go with these electrical outfits.

That Aversion

The farm-lighting outfit, as an article of merchandise to be sold by automotive dealers, is of course a new product, and there has been in some cases a natural aversion to it on the part of men who have spent years in the business of selling motor cars.

To sell a truck is not such a new enterprise because it is merely an adaptation of the gasoline vehicle, but when it comes to ringing in such a thing as a farm-lighting system the dealer perhaps is not to be blamed if he insists that he "can't quite see it."

Even if he is willing to admit that the farm-lighting system is a logical article of merchandise and is something that is especially needed in these days when motor cars and allied products are not as plentiful as they used to be, he probably would not be willing to admit that it is possible or feasible or desirable for him to go into the sale of vacuum cleaners, electric pumps, bread toasters, and all those other electric rinkey-dinks that are sold in electric supply stores.

But that these electrical goods can be sold by the automotive dealer and sold with a good margin of profit has been demonstrated during the past two years and a half by C. A. Clark of the Repass Automobile Co., Waterloo, Iowa, who has been a distributer of the Delcolite for that period. Sales of this farm-lighting outfit have been particularly good in that prosperous section of Iowa in which Clark is located. Furthermore, he has been in the business long enough that his experiences and methods are a pretty good guidance to the distributer who is about to set out in his new field.

At the beginning Clark endeavored to merchandise the farm-lighting system on the same basis that he sold his motor cars. He placed his agencies with all the small dealers throughout his territory, and endeavored to promote the proposition in that way.

However, he found that the merchandise was of a somewhat different character. Motor cars had been on the market for years, and no matter how little enterprise a dealer had he could sell some cars because the public wanted them and came in to buy them. But in the case of the farm-lighting system it was a new product, and it largely had to be sold to the public. People did not flock into the stores in great quantities and demand these goods as they did in the case of motor cars. This meant that a great deal of pioneering had to be done.

Pioneering Needed

Clark endeavored to teach the dealers to do this pioneering, but found that he wasn't making progress such as he wanted. Therefore he determined that he would jump into this pioneering work himself and eventually get the business up to the point where the dealers could handle it with somewhat near reasonable efficiency.

He adopted the specialty man arrangement. He assigned one of his men to the selling of farm-lighting systems and sent him out through the territory with a farm-lighting system in a car. This salesman went around among the farmers, dug up prospects, secured all his own leads, and sold the systems. Sales have been good and the business has been highly profitable. An arrangement was made with dealers, giving them a commission amounting to five or ten dollars, provided they would notify the distributing agency whenever they ran across a prospect for farm-lighting system. Then the special man made the sale.

Clark found that wherever he sold a system it developed other sales, and when he gets the territory sufficiently filled with these systems it will then be possible for the dealer to handle the goods with profit.

The biggest forward step he has taken, however, and one which demonstrates the possibility of expanding the field, is the manner in which he has been selling electrical goods. The farm-lighting system sells for about $500, and in practically every case he has in addition sold an electric pump and a vacuum cleaner. The pump, of course, is used to send water through the plumbing in the house and to the barn and is perhaps the first great necessity that the farmer sees in connection with the farm-lighting outfit. The barns of course are wired, which makes it possible later on to sell the farmer electrically operated machinery to be used in his farm building. An ordinary job of wiring costs thirty-five to fifty dollars, not counting the fixtures.

Then a Vacuum Cleaner

Generally after a lighting system has been in use for some time the special salesman will begin to concentrate on the sale of some electric specialty such as a vacuum cleaner. He takes one of these cleaners in his car, goes to a farmhouse, carries the cleaner into the house, shows the housewife how it operates — and leaves it there. In practically every case when he comes back later to look after the sale he finds that the sale is already made and all he has to do is collect for it. He finds that very few housewives who have used a vacuum cleaner in a farmhouse will part with it.

He is also expanding his business to include other electrical specialties of that kind. Of course the farmer doesn't enthuse overmuch over such things as electric toasters, but the housewife will always buy an electric flatiron.

(*Continued on page* 49)

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S. A. E. Meeting

Great Rumor Killer

Engineers See at First Hand Truth About Liberty Motor and Other War Achievements

Confidence Established and Pride Aroused in America's Wonderful War Engineering Progress

EVERY DEALER SHOULD READ THIS STORY



CHARLES F. KETTERING
President, Society Automotive Engineers

DAYTON, OHIO, June 19—The greatest rumor-killing enterprise since the war began was the two-day summer session of the Society of Automotive Engineers held at Triangle Park Monday and Tuesday.

To the engineers who gathered it was a war engineering conclave, but to those who have not been familiar with engineering developments the meeting was an eye-opener as to the progress that America has made in her war work.

Men who came with their minds filled with the conflicting rumors about the Liberty motor saw this motor side by side with nine other airplane engines, and a comparison point by point made the Liberty motor stand out as the greatest achievement of its kind in the history of the world.

Military tractors crept over trees 7 in. thick and hauled guns around with ease. Many types of war engineering machinery were displayed. Speakers told of the progress that American energy and initiative have effected. The result of the meeting is a wonderful stimulant to every man of the 1200 who attended the sessions.

Throwing the spotlight on these real activities, coupled with the government's recent announcements as to army progress, has put confidence and stability where before was only wild and demoralizing rumor.

Great Automotive Show

The scene of the meeting looked more like an automotive show than an engineering meeting. Nearly three-quarters of the big convention pavilion in the midst of the 450-acre private park was filled with airplanes, engines, parts of wings, propeller-making machinery, and there were so many farm tractors and war trucks and artillery tractors outside that the exhibit end took up half of the time of the convention and proved one of the biggest and most successful innovations ever introduced by an engineering society.



ORVILLE WRIGHT
The first person to make a sustained flight in a heavier-than-air machine

The Liberty engine headed a line of ten aviation war engines—the greatest display of such engines ever grouped together in this country. Alongside of it stood the Rolls-Royce, its British rival, and next in line was the Renault, another rival from the other side of the ocean. Then the line continued with two models of the Hispano-Suiza, the Mercedes, the Benz, the nine-cylinder Rhone and others.

Two-thirds of the main floor of the auditorium was taken up with four complete airplanes, the list including the De Haviland battleplane with its four ma-

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New Types of Army Automotive Equipment

Exhibited at the S.A.E. Meeting at Dayton last week



Type of officer's car used by the Ordnance Department



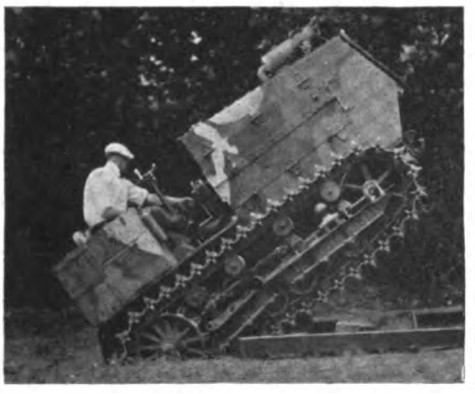
This is the new Militor four-wheel-drive ordnance truck



The Holt 10-ton tractor drawing a heavy howitzer over rolling land



Nothing stops these creeping machines



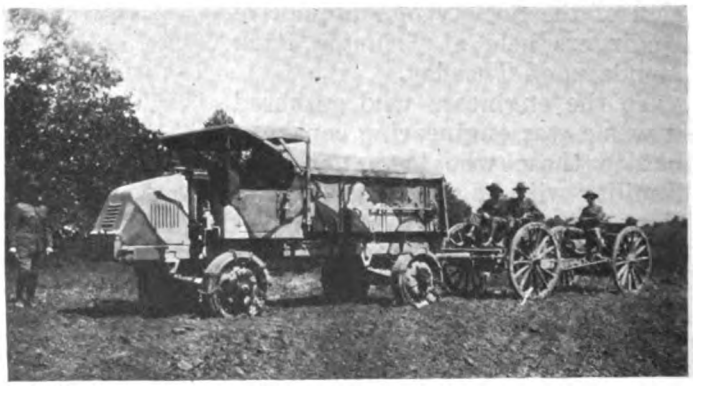
This proves their versatility



Up hill and down dale the creepers drag their tremendous loads without falter



Unloading a heavy gun from a trailer



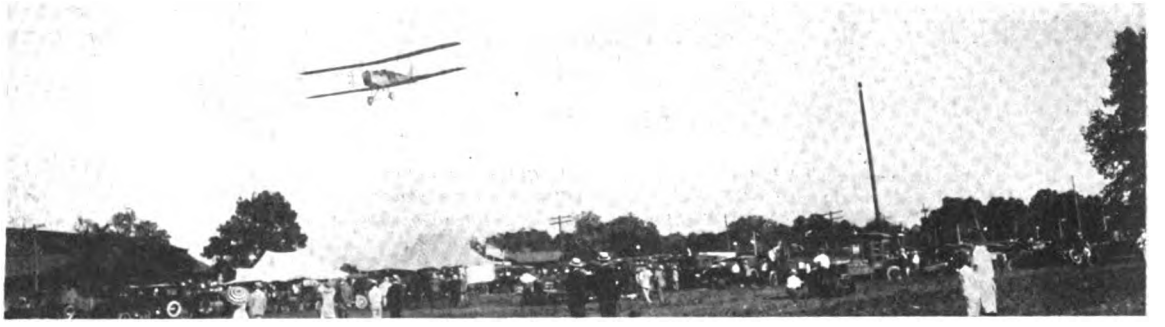
The Militor truck used as a tractor to draw a gun carriage

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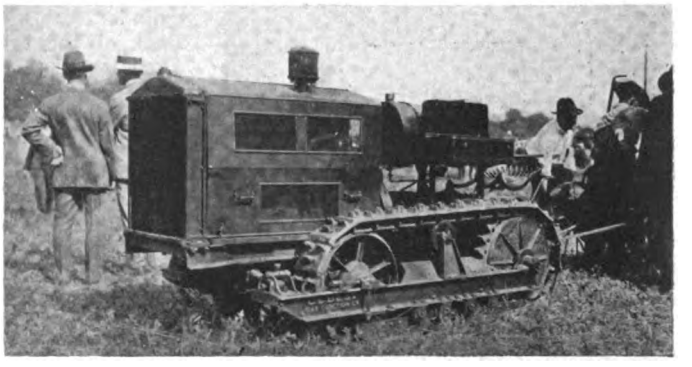
Close To Mother Earth and Way Over Her

What The Engineers Saw at Dayton



Above is a De Haviland plane equipped with a Liberty engine and at the right are two more which did stunts for the S. A. E. members





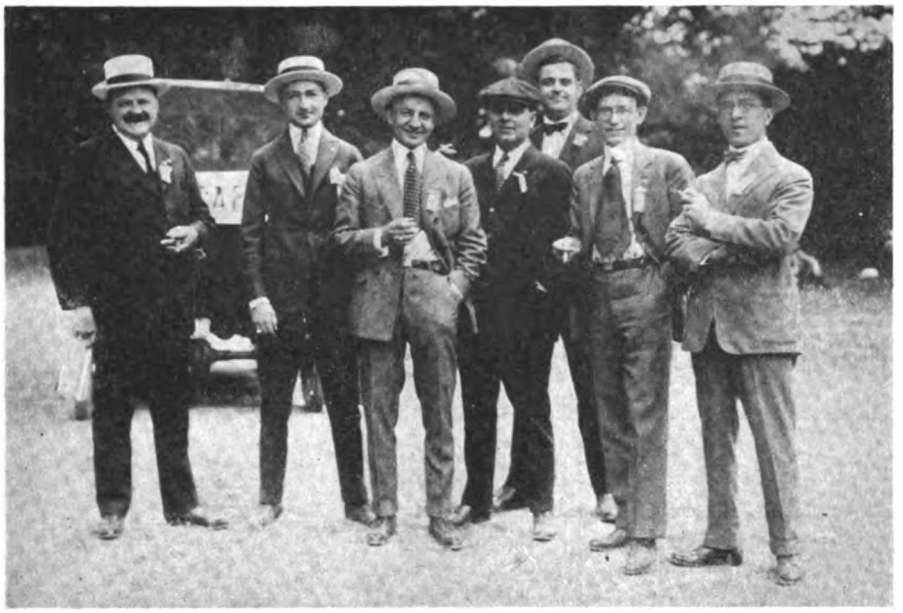


During the meeting there was quite a demonstration of farm tractors, the Fordson, Best, Cleveland, Case and Parrett being put through theier paces for the benefit of the visiting engineers. Below is the Parrett and above is the Best; the others are easily recognizable





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B. Darrach, Jr., Laminated Shim Co.; W. I. Ralph, Class Journal Co.; R. W. Randall, Falls Motor Co.; R. W. C. Swan, Ingersoll Milling Machine C.; H. A. Schotz, Federal Bearings; H. R. Portugal, Thermoid Rubber Co., and A. R. Clas, Falls Motor Co.



Major Chas. M. Hall

chine guns and Liberty engine and the first plane ever flown with an engine—namely, the Wright, which flew on Dec. 17, 1903—the French single-man fighter Spad, and lastly the German Rumpler.

Squeezed in was a fuselage of the De Haviland plane with Liberty engine and all of the equipment used on a fighting plane. A platform specially built along each side allowed members to look into the details of the plane, handle its parts, see every detail and get first-hand information.

But the list of exhibits included much more. Along one end was a table covered with every part of the Liberty engine from the smallest bushing up to the cylinder casting and the crankshaft. Back of the table stood a soldier with fixed bayonet, and, while any person could handle the parts, feel their weight and examine into every detail, no one was permitted to take out a pencil to make a sketch or a ruler to measure a part. Cameras were barred.

Along another wall were all of the parts of the De Haviland plane, from a skeleton wing, showing every piece and every wire, to wheels, landing gear, control parts and wing beams. Every piece was tagged and its use stated.

Outside at one end of the pavilion in a huge tent erected for the purpose was a Defiance propeller-making machine installed by the Dayton Wright Airplane Co. The big factory machine had been moved from the Miamisburg factory specially for the S. A. E.. and it worked from morning to night, driven by a special electric motor just as it would have worked in the factory. It was on war work and it worked at war speed.

While the sessions were not in progress the members stood watching this machine shape propellers for the De Haviland battleplane, and when it completed its task skilled workmen did the final shaping and forming just as their fellow workmen were doing in the factory. It was a great object lesson in manufacture and an excellent stimulant for the engineers.

Outside was the ordnance exhibit of three different sizes of creeper-type artillery tractors that constantly demonstrated each afternoon, showing how they go through woods trailing the

(*Continued on page* 37)



Stanley Witworth, Stutz Motor Car Co., and O. L. Harrison, Dayton Eng. Lab. Co.



W. J. Graham, Graham Eng. Co.; E. T. Birdsall, White Co.; R. H. Rosenberg, Adams Axle Co.; G. A. Unger, S. K. F. Ball Bearing Co.; C. A. Schell, Thermoid Rubber Co., and Harry Portugal again

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Drive-away Bureau

ASK FOR INFORMATION—AND—GIVE US INFORMATION

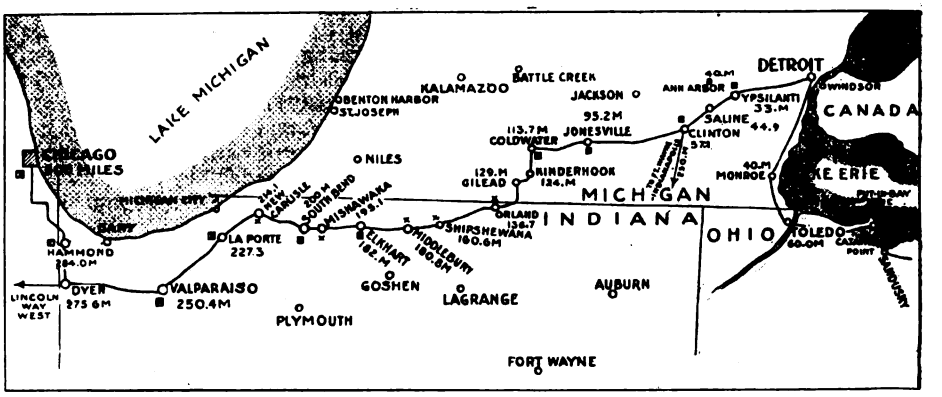
THIS department will be continued indefinitely. Its aim is to provide a clearing house for information as to routes, road conditions, hotel rates, garage rates, unfair conditions, new routes, etc. Motor World will make an effort to get any information you desire. In return, all dealers are requested to forward promptly any information they have regarding drive-aways. Send your information so it will reach New York not later than Monday of each week.

Maxwell Logs Shortest Route Between Detroit and Chicago

Forty-five to Sixty Cars Driven Away Weekly—Only One Stretch of Bad Road Encountered—White Arrows Guide Drivers

THE Maxwell Motor Co. has logged a route from Detroit to Chicago which is used every week to carry from forty-five to sixty cars from the plant. It is claimed by the company to be the shortest route between the two cities and further claimed that only 40 miles of bad road are encountered—this just west of Coldwater, Mich., where the road leads over sandy hills and makes it necessary to reduce progress to about 10 m.p.h. White arrows have been marked along the route at every turn of the road, making it comparatively easy to follow. The route of the logged road follows:

12.7—R. R. crossing.
14.1—Dearborn, straight through.
17.6—Inkster, straight through, danger R. R. crossing.
19.2—R. R. crossing, passing Eloise Hospital.
20.8—R. R. crossing.
21.5—R. R. crossing, passing through Wayne.
22.2—Under R. R.
23.2—Caution speeders, Dead Man's Curve.
29.7—R. R. crossing.
30.2—End of pavement, gravel roads.
32.0—R. R. crossing.
33.1—Left over R. R. bridge, then right, follow trolley into Ypsilanti.
34.8—Center of Ypsilanti, straight through to
35.0—Go left with trolley and follow same to Saline.
41.2—Dangerous R. R. crossing down hill.
44.9—Through Saline, straight ahead down hill, crossing bridge.
45.6—Go left at fork.
57.0—Straight through Clinton (Clintonian Hotel and Garage on right).
57.1—R. R. crossing.
62.7—Left up hill.
64.7—Lake on left and summer hotel on right, straight through.
65.2—Straight through.
65.4—Sand Lake road on left, go straight ahead.
66.5—Brick house on right, straight ahead.
66.9—After curving left up hill turn right at white house.
67.3—Pass road on left, and later, small lakes on right and left.
69.0—Pass school and road on right.
69.5—Pass school and roads on right and left.
70.6—Cambridge Jct., small hotel on left, straight through.
71.4—Pass road on left.
71.9—Pass Brooklyn road on right.
74.9—Pass road on left and road right at brick school.
76.2—Cross road, Cement City on right, go straight ahead, passing under R. R.
78.6—Through Somerset, small hotel on left and garage on right, straight ahead.
80.2—R. R. crossing.
80.4—Pass road on left, then through Somerset Jct., straight ahead, avoiding all left and right hand roads.
85.6—Through Moscow, R. R. crossing; small hotel and garage, straight through.
87.6—At large Hillsdale sign, and white house, take left hand road.
89.2—At church and long shed on right, keep left.
90.8—At Mills' general store, straight ahead.
92.4—End of poor roads.
95.2—Jonesville, straight through.
95.3—And 95.6 R. R. crossing, stations on right, straight through.
101.9—Allen, straight through. (Garage and hotel accommodations.)
107.1—Quimby, straight through. (Garage and hotel accommodations.)
107.6 and 108.0—R. R. crossing.
111.3—At Maxwell sign, curve right into Coldwater on Chicago Avenue.
113.7—Center of Coldwater, Arlington Hotel on right, straight through one block to Clay Street.; 113.8 here turn left.
114.2—R. R. crossing on left, straight ahead.
124.0—Kinderhook cross road, straight through.
124.5—Lake on left, curve right, and at 124.9 curve right away from lake.
126.0—Pass lake and at 126.6 pass church.
129.0—East Gilead, turn left between store and white church.
130.7—Curve around lake.
131.6—Red barn on far right, turn right.
136.7—Orland, Ind., straight through (small hotel and garage).
137.6—At big trees, turn left.
137.9—At red stable and white house, turn right.
144.5—Brighton Village, straight through.
146.8—Jog slightly left and right at brown house.
150.2—Danger, R. R. crossing immediately



Map of route from Detroit to Chicago logged by the Maxwell Motor Co. From forty-five to sixty cars are transported over these highways every week

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beyond, turn right one block, then left, passing through town of Howe, straight through.
151.7—Farm house ahead on right, turn left crossing bridge farther on, then turn right at 152.4.
154.8—Bear right and curve left, passing around small pond.
155.6—Turn left.
156.0—Curve right.
157.0—Turn right, passing school at 157.3.
157.8—White house ahead on right and big tree on left, turn left and at 158.0 turn right.
159.3—Turn left.
159.5—Cross R. R., then turn right.
160.6—Shippshewanna (to the right), straight ahead.
166.9—Pass between cemeteries over two small bridges into Middlebury. (Garage and hotel accommodations.)
167.4—Straight through at main street, one block beyond at yellow house take angling road to left, passing school and crossing R. R. at 167.7.
171.3—Slight jog to left and right.
180.4—Curve right.
180.8—Turn left on Middlebury Street trolley line, crossing bridge 181.3.
181.5—R. R. crossing.
182.0—Oakland Avenue, turn left, passing large school on left and under R. R. at 183.2. (Note—This is a detour while main route is being paved.)
184.6—White house and school on left at cross roads, turn right off of concrete road, road becomes rough for a few miles.
188.7—At cemetery on right (main road joins from right, this would be end of detour). Go straight ahead over bridge.
189.1—Curve right over dangerous R. R. crossing, then turn left through Osceola.
191.8—End of paved road, rough to 193.4.
191.5—Mishawaka, straight through with car line, follow same for several miles curving left into South Bend on Washington Street.
199.8—Washington Street and Michigan Avenue (Oliver Hotel), turn right on Michigan Avenue about two blocks to Lasalle Street. 200.0 mi. here turn left and follow the official Lincoln Highway markers, red, white and blue bands painted on telephone posts. The roads are macadam and concrete all the way to Chicago.
201.2—R. R. crossing.
209.0—R. R. crossing.
213.6—Very dangerous R. R. crossing, three railroads to be crossed, lookout for fast trains.
214.1—Through New Carlisle.
217.4—Take left hand road. (Right goes to Michigan City.)
223.5 and 226.1—R. R. crossing.
227.3—Center of LaPorte, straight ahead.
227.8—Flour mill on left, turn left on J Street three blocks, then right on Fourth Street.
228.1—Avoid left hand paved road, go straight ahead on angling macadam road.
228.8—R. R. crossing.
237.9—Pleasant View Farm, turn left.
239.4—At white house, turn right, passing through Westville.
239.6—R. R. crossing, station on right, straight ahead.
240.0—Danger, left and right under R. R.
240.1—Take left hand road.
242.7—Under R. R.
246.7—Danger, R. R. crossing.
250.0—End of road, right, then first left into Valparaiso.
250.4—Valparaiso court house on right, straight through, curving right along R. R., caution to turn left at 251.1 over narrow R. R. bridge (straight ahead goes to Wheeler).
251.7—R. R. crossing.
265.7—R. R. crossing through Merrillville.
267.1 and 269.2—R. R. crossing.
275.6—Center of Dyer, bank on far right, turn right, leaving the Lincoln Highway, follow Maxwell's white arrows on telephone posts.
275.7—Cross R. R., then first right, then first left, crossing R. R. 275.9.
277.3—R. R. crossing.
279.0—R. R. crossing, immediately beyond, turn left short distance, then right on wide macadam road, straight north for many miles, passing straight through Hammond.
280.5—School on right, ridge road, straight ahead.
283.1—R. R. crossing, straight ahead on Calumet Avenue, Hammond, crossing many dangerous R. R. crossings.
285.4—Straight ahead on wide boulevard. (Note—Solid tired vehicles not allowed.) (Turn to left to go around boulevard.)
288.6—R. R. crossing.
289.9—Edelweiss Cafe on left, Veneva Hotel on far right, turn left on Indianapolis Avenue with car line. R. R. crossing at 291.5 and 291.6.
292.1—Curve right on Ewing Avenue, passing under R. R. crossing.
293.3—Curve left over drawbridge and immediately beyond turn right on Mackinaw Avenue, South Chicago, along steel mill.
294.3—R. R. crossing.
294.7—Left short distance, then right with trolley on Branndon Avenue. (Note—One block to the left picks up the Boulevard system at large church.) (On right, this route avoids the Boulevard.)
295.3—End of street, left on Seventy-ninth Street.
295.6 and 296.1—Trolley crossing, straight ahead to
297.3—Cross Stoney Island Boulevard, then curve right on South Chicago Avenue, an angling brick street with car line.
299.5—R. R. bridge on the left, bear right up South Park Avenue to Sixty-third Street. Elevated R. R. 300.0 mi., here turn left on Sixty-third Street.
300.5—Turn right on Wabash Avenue, follow same about 5 mi. directly north to the center of Chicago 305.0 mi.

Buyers Urged to Drive Cars from Factory

BLOOMINGTON, ILL., June 25—C. U. Williams urges every buyer of a car to drive his own car overland from the factory, and, as this knocks $50 from the price, many patrons are doing so. While they are not saving very much, if they figure their time is worth anything, yet the idea appeals to a good many and the plan might be adopted by other dealers who are facing the drive-away problem.

Williams believes that there is a right and wrong way to handle drive-aways and, when he found that he could not depend upon the railroads, evolved a plan to get cars from the factory to the garage with the minimum of expense and damage.

He found that the principal damage to cars affected the varnish. Manufacturers are prone to deliver cars fresh from the paintshop. This is a serious mistake, in Williams opinion. The paint and varnish should be given sufficient time to dry before being permitted to go on the road. If this were insisted upon, the damage would be vastly reduced.

Fifty per cent of the cars driven overland by Williams had to be re-varnished. Damage to cars would also be reduced if there were good roads all the way. Unfortunately for the Illinois dealers, the roads in this state are not so good as those of Indiana and Ohio. As soon as the state line is crossed, there is a marked difference in condition of the highways.

Williams has placed his drive-aways in charge of his daughter, Miss Francoise. She has made forty trips during the past year between Toledo and Bloomington and has met with extraordinary success.

She drives the leading car and assembles the string of cars in squads of five. The driver of the head car of each squad is designated as captain and these five cars always keep together. In case there is trouble to any car of the five, the other four are stopped, while the remainder of the squadron goes on. This gives five drivers to look after the trouble.

If the break is not too serious and can be repaired, the squad moves on. In case of a broken axle or something that can not be repaired, the car damaged is cut out and stored until the new part can be obtained, the driver going home with the other members of his squad. This has happened but twice in the past year, however, most of the trouble relating to tires. One extra tire is carried for each five cars.

A schedule is arranged which is strictly adhered to. Two days are required to drive from Toledo, O., to Bloomington.

On the first day, a speed of 25 miles per hour is adhered to, the theory being that with cars fresh from the factory, there should be a slower movement. The drive-away extends from Toledo to Fort Wayne, Ind., for the first day, and from Fort Wayne to Bloomington via Watseka, and Chenoa, Ill., the second day. No change in this schedule is permitted, except in case of rain or muddy roads.

While Miss Williams has piloted as many as twenty-nine cars in a drive-away, the number usually ranges from fifteen to twenty-five.

The latter number is preferable. The most satisfactory route with the best roads, between Toledo and Bloomington, extends through Hicksville, Fort Wayne, Logansport, Remington, Watseka and Chenoa. Cars are required to keep 200 ft. apart during the day time and 100 ft. at night. A code of signals has been evolved which all must respect.

Arm or horn signals are used during the day and lights at night, the latter being flashed on and off alternately. In case of fog, the horn is blown. This is advisable when reaching crossroads or turns. No driver is permitted to stop his car without signaling to the men behind.

Williams has found that it costs about $5 to clean up a car after it has been driven overland from the factory. The dirt gets into the varnish, dust being the greatest trouble. In case the car must be re-varnished the expense, of course, is much greater.

The captain must regulate the speed and this is governed by the condition of the roads largely. If it is expedient, the speed for the second day's run can be in-

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creased to 30 to 35 miles per hour. No spurting is ever permitted. A steady gait is maintained from the time of leaving the factory until the destination is reached.

Miss Williams has piloted 1000 cars between Toledo and Bloomington in the past year, which is believed to be a record. Of these, 116 were driven during the month of March alone and when roads and weather conditions were not of the best. Great care is exercised in the selection of the squad leaders and they are held responsible for the five cars under their control. By strictly enforcing the rules laid out and seldom varying from the schedule as previously outlined, Miss Williams has met with unusual success and has reduced trouble and loss to the minimum.—E. E. Pierson, Bloomington, Ill.

Car Deliveries to Rochester Improve

ROCHESTER, June 15—Within the past 2 weeks there has been a decided change for the better in the delivery of motor cars to this vicinity, and several of the larger distributers have announced that they are now getting all the cars they need by rail. Among these concerns are the Overland-Rochester Co., C. L. Whiting, Buick distributer, and A. L. Boyce, distributer of Chevrolet cars.

E. D. Creed, president of the Overland-Rochester Co., reports that since June 1 his company has had no trouble in getting cars shipped from the Overland factory at Toledo. Deliveries are better from Toledo than from Detroit, he says, because of the fact that Toledo is the center of so many trunk line railroads. He ordered a number of cars only 10 days ago and are now on the road.

C. L. Whiting, Buick distributer, perhaps has made more factory drive-aways than any other Rochester dealer, because of the fact that since last fall he has been unable to get any but closed car deliveries. Up until June 1 he had driven about 500 Buicks to Rochester, over the Canadian route, but since that time has been able to obtain deliveries.

Whiting describes the Canadian route as much shorter and safer than the Toledo-Cleveland-Buffalo route, especially during the winter and spring. The route followed was from Flint to Port Huron, crossing the river at Sarnia, and then to Woodstock, London, Hamilton, Buffalo and Rochester. This trip saves about 200 miles, Mr. Whiting said, and by leaving the factory at 8 a. m., the cars usually reached Rochester on the evening of the second day.

The roads are good all of the way from Woodstock, and at Hamilton the improved roads are reached, and are excellent from that point through to all points east. Although there was some traffic trouble reported along this route during the spring. Whiting had no trouble with any of his cars or drivers. The traffic trouble was mostly caused by boisterous or drunken drivers, he states, and all along the route he found the authorities very fair toward all careful drivers. Garage charges on this route vary from $1 to 50 cents a night.

Hotel accommodations are excellent, either in Woodstock, Hamilton or Buffalo.

William G. Heiber, Grant distributer, has recently made several drive-aways from the factory at Cleveland. He reports the road in excellent condition with the exception of the 16-mile stretch of dirt road between Ashtabula and Silver Creek, which might bother heavy cars n wet weather. He advises that dealers coming over this route endeavor to make Buffalo at night, in order to secure the best hotel accommodations and garage privileges.

Wilmington Increases Drive-aways

WILMINGTON, DEL., June 24—Local additions to the drive-away fleet are reported, in view of the fact that the demand for motor cars is growing and the railroad congestion is not improving sufficiently to give relief.

Cars were driven in last week by John P. Cahill & Co. (Dodge), Diamond State Automobile Co. (Paige), Sweeten-Wilmington Co. (Franklin and Hupmobile), and F. B. Norman & Co. (Ford), while the F. H. Taylor Co. (Haynes) is awaiting word of the readiness of a dozen cars it wants at the Kokomo factory.

Instances have developed here where purchasers have volunteered to go to the factory and drive the cars in themselves.

Turning Inquiries Into Sales

THE automobile editor of a prominent newspaper in the Middle West walked into the store of a large accessory concern in his city the other day and asked for some spark plugs. They were not forthcoming. It was the way he asked for them.

"Bill," he asked, "I wish you would give me half a dozen spark plugs."

The dealer was a little doubtful about the word *give*, but he met the request with an evasive query of his own.

"I can let you have any kind you want," he qualified.

"You don't seem to get me," answered the newspaperman. "I said *give*."

"Wass the idea?" was the suspicious rejoinder.

"Well! I tell you, Bill; yesterday afternoon while I was in here, waiting for you, a motoring party pulled up. I never saw 'em before, and neither did that tall, skinny clerk of yours. Through the open window I saw a big touring car, equipped with everything from a wireless mast to portable beds. In short, my dear William, it was a *touring* car in every sense. The driver, doubtless owner as well, came in. He wanted to know the best road from here to Smithburg. Instead of selling him the information, our thin friend gave it to him."

"Must be thick this morning," answered the dealer, "what *is* the fourth dimension?"

"The fourth dimension," replied the other, "is that I saw an express wagon pull up here about two weeks ago with about 100 Automobile Blue Books."

"But the guy didn't *ask* for a Blue Book."

"Certainly not. But if he ran out of gas, would you take pity on him and slip him a few gallons out of your divine philanthropy?"

"No," agreed the dealer, "I'm beginning to get you now——."

"Not yet, but you will. You go out of that door and I'm going behind the counter. You come in and pull that line of gaff on me."

"Oh, cut the comedy," impatiently replied the dealer, "can't you tell me?"

"I could, but I won't. If I'm going to make some money for you, you've got to learn it my way."

The dealer looked sheepishly about, but it was still early in the day, and he complied.

"I want to know if I can trouble you for the best road from here to Smithburg," he said after his entrance.

"With pleasure," answered the pseudo clerk, and reached for a copy of the Automobile Blue Book from a rack on the counter. "The road is easy," he said, as he glanced at the printed page. "You go down Fontaine Avenue here till you come to Jackson Street. Turn right at Jackson Street and follow trolley tracks until you pass the bank at the left; then diagonally across railroad tracks and straightaway with telegraph poles. At four corners turn sharp left on turnpike till you come to new State Road, turning right again at Gray Brick Church——."

"Wait a minute," interrupted the dealer, entering into the spirit of the wordplay. "Has that book got all that information?"

"Oh, yes," answered the imitation clerk, "and if you set your mileage at the city square, just down the street, it will tell you by your speedometer exactly where you are and your turns are all marked by mileage."

"How much are they?" asked the "customer."

"Three dollars," was the reply, "and you find thousands of miles of just this kind of touring information, with points of interest, not to mention hotels, service stations, garages——."

"*Enough.*" And the dealer laughed. "You're absolutely right."

And then, when the newspaperman finally took his leave, "Blow in to-morrow; I'll slip you an ad. for Sunday's automobile section about the Blue Books. It's worth it."

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Taking the Red Ink Out of Service

How the New York Federal Truck Dealer Pulled His Service Station from the Wrong to the Right Side of the Ledger and Made the Service to the Customer More Satisfactory Than It Was Before

By J. HOWARD PILE

FOR years the Morton W. Smith Co., Inc., New York, distributer of Federal trucks, took it for granted that any expenses incurred above receipts in the service station were more than made up for by the advertising value of good service. In other words, after a truck had been sold it continued to be more or less of an expense to the agency through service.

About a year ago it was thought that perhaps the expenses of the station could be cut down without impairing the service to the owner, and W. W. Wright, a wiry, energetic man crammed full of efficiency ideas and shop shortcuts, was made superintendent and was given free rein to stop leaks, introduce systems and improve things generally.

During his incumbency shop methods have improved, inspection service has been successfully carried out and *more work has been done at less expense. The change resulted in a profit of nearly* $200 *a month in the service station instead of a loss of a like amount, which existed previously. Efficiency, system and working for the customer's interest have therefore saved the agency about* $100 *a week.*

And it is practically impossible for a customer to sustain a kick on service rendered or charges made.

When Wright took hold of things, he found so many leaks, so much wasted time and so much misdirected effort that he started a list of things that he needed changing.

He found that the station was being billed for between 50 and 60 gal. of kerosene a week merely for washing parts. He remedied that leak, and reduced the consumption to about 6 gal. a week.

He found that many taps, dies, reamers and expensive special tools were disappearing all the time, and that not only was this costing the station $500 or $600 a year, but when you wanted a tool, just as like as not it was not there, and someone had to be sent out to get a new one. Wright put in a tool stockroom and checked all the tools taken out and reduced that bill to practically nothing.

He found that the mechanics seldom took the trouble to charge up oil and grease to a job. They simply went over and helped themselves, and neglected to chalk it up. Result—loss to the station. He fixed that.

He found that about the only records kept of the jobs were entries by the foreman in a copy book. If a customer was given a quotation on a certain operation and then later phoned in and said: "You might as well fix that brake and that steering gear and put some oil in the rear axle," and about nineteen other things, then when he came around for the truck and raised a howl and said: "Why you said that job would only be $12," then the station had no records to show, and often it was necessary to compromise, and the agency was out the amount that was cut off the bill.

Wright fixed that.

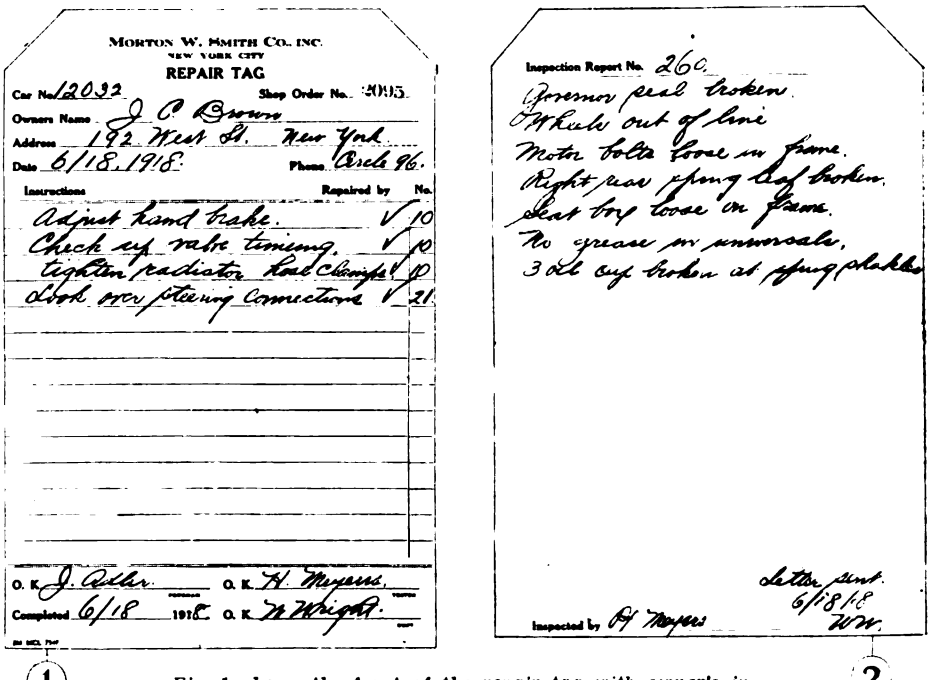
He devised forms that make such an occurrence impossible, and insure fair and square dealing for both the customer and the station. It is not possible to overcharge the customer and it is *not possible to undercharge him.*

Shop Records and Routine

When a truck is sent to the shop for repairs, adjustment or overhauling, it is taken out on the street—provided, of course, it is in such condition that it will run—with a shop inspector.

No matter what instructions the driver or owner may give as to the work he wants done, a superficial test and examination of the truck is made and a report made out on the back of the repair tag.

A specimen report is shown in Fig 2, and in this particular instance the OWNER specified the following repairs: Adjust handbrake, check up valve timing,


MORTON W. SMITH CO. INC.
NEW YORK CITY
REPAIR TAG
Car No. 12032 Shop Order No. 3095
Owners Name J. C. Brown
Address 192 West St. New York
Date 6/18/1918 Phone Arch 96
Instructions — Repaired by — No.
Adjust hand brake. ✓ 10
Check up valve timing. ✓ 10
tighten radiator hose clamps ✓ 10
look over steering connections ✓ 21
O. K. J. Adler O. K. H. Meyers
Completed 6/18 1918 O. K. W. Wright

Inspection Report No. 260
Governor seal broken.
Wheels out of line
Motor bolts loose in frame.
Right rear spring leaf broken.
Seat boy loose on frame.
No grease on universals.
3 Lt cup broken at spring shackle
Inspected by H Meyers
Letter sent 6/18/18 WW.

1 2

Fig. 1 shows the front of the repair tag with owner's instructions. Fig. 2 shows reverse side, with inspector's report

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tighten radiator hose clamps and look over steering connections.

The INSPECTOR, Meyers, on taking the truck out on a test, found that the governor seal was broken, wheels were out of line, engine bolts loose on the frame, one of the right rear spring leaves broken, the seat box loose on frame, no grease in the universals and three oil cups broken off the spring shackles.

Before work was started on this truck, the repair tag was turned over to the superintendent, who compared the owner's instructions with the findings of the tester.

Finding that there were several things the matter with the truck that the owner had not ordered fixed, he called the owner on the telephone. Letters are written if time permits. The following is the kind of letter that would be written:

Dear Sir:

Your Federal truck No. 12032, now in our shop for repairs in accordance with your instructions, has been inspected and we find that the following things need attention:

The governor seal has been broken and the truck has been run at high speed. When your truck was in here last November we found the seal broken and called your attention to it. This should be sealed and kept sealed or the truck will run down rapidly.

The front wheels are out of line. This will cause the front tires to wear out rapidly.

The engine bolts are loose in the frame, causing a knock. If they get much looser, the engine may drop or be strained.

One leaf in the right rear spring is broken. If this is not replaced soon, other leaves will break and later the whole spring will give way.

The seat box is loose on the frame.

There is no grease in the universals. This shows carelessness in lubricating the truck, and if these are not greased immediately, rapid wear will take place, and they will have to be overhauled.

Three oil cups are broken off the spring shackles. It is impossible to oil the shackles with these cups gone, and rapid wear will take place if they are not replaced.

To keep your truck in the best possible shape, these details should be attended to at once. If you cannot spare the truck long enough to have these repairs made at this time, we suggest that you either allow us to do the most important things now and send the truck in later for the balance, or send the truck in next week. *Yours very truly,*

MORTON W. SMITH CO., INC.

If the owner agrees to have the additional work done at the time, the new

MORTON W. SMITH CO., INC.
NEW YORK CITY

Shop Order No. 21480
Date ____ 19__

Name J. C. Brown
Address 192 West St. New York
Car or Truck ____ No. 12032

Chgs. Labor to
Chgs. Mat'l. to

INSTRUCTIONS

Adjust hand brake 10
Check up valve timing 10
tighten radiator hose clamps 10
Look over steering connections 21

THIS SHOP ORDER MUST NOT BE DISTRIBUTED IF VOIDED RETURN TO ACCOUNTING DEPT.

IT IS EXPRESSLY UNDERSTOOD AND AGREED THAT THERE ARE NO PROMISES, VERBAL UNDERSTANDINGS OR AGREEMENTS OF ANY KIND NATURE OR DESCRIPTION PERTAINING TO THIS ORDER, NOT CLEARLY SPECIFIED HEREIN.
ALSO MAKE ANY OTHER MINOR REPAIRS AS IN THE JUDGMENT OF THE SHOP FOREMAN MAY BE FOUND TO BE ACTUALLY NECESSARY

TERMS CASH Signed J.C.Brown

3

MORTON W. SMITH CO., INC.
NEW YORK CITY

Shop Order No. 21480
Date ____ 19__

Name J. C. Brown
Address 192 West St. New York
Car or Truck ____ No. 12032

Chgs. Labor to
Chgs. Mat'l. to

INSTRUCTIONS

Adjust hand brake
Check up valve timing
tighten radiator hose clamps
Look over steering connections

Completed ____ 191

5

Fig. 3 front, Fig. 4 back and Fig. 5 carbon copy of repair order

SUMMARY

Mat'l
Labor
Total
Charge

Job. No.
Inv. No.

Date	Inv. No.	ITEM	Stock	MATERIAL QP Used	MATERIAL CP Used	LABOR Name	LABOR Hours	LABOR Rate	LABOR Amount

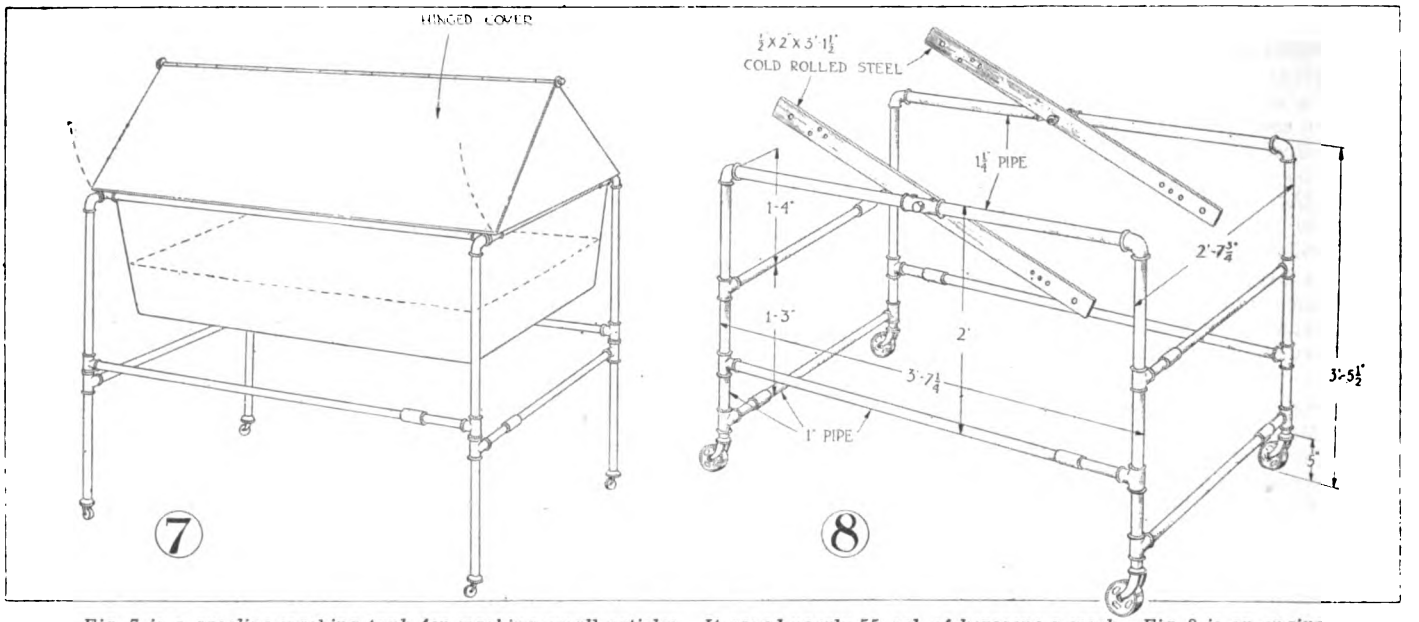


Fig. 7 is a gasoline washing tank for washing small articles. It saved nearly 55 gal. of kerosene a week. Fig. 8 is an engine stand made of pipe and fittings. An engine can be held in any position and can be tested on the stand

items are added to the front of the repair tag and either the owner or the driver signs for them on another form shown in Fig. 3.

The repair tag accompanies the job and as each repair noted on the tag is completed, the mechanic puts his number in the column at the extreme right opposite the instruction.

Check-up Prevents Errors

In the present instance Mechanic No. 10 has completed the first three repairs and Mechanic No. 21 has attended to the steering connections. When the job is turned over as finished by the mechanics, the foreman takes the repair tag, goes over the list of things ordered done, sees that they have been done and then puts a tick mark after each one, and signs his name at the bottom of the tag.

A tester then takes the truck out again, and if things are working all right, he signs at the bottom of the tag, the tag goes to the superintendent, who examines and signs it. The job is then ready to be turned over to the owner or driver.

It is to be noticed here that any other defects found in the truck which were not observable in the brief road test are entered on a form shown in Fig. 6. More will be said about this later.

Repair Order Forms

Figs. 3, 4 and 5 are on two sheets of thin white paper. Fig. 3 is the front sheet, Fig. 4 being on the back of it. Fig. 5 is on the other sheet, and the back of this sheet is blank. A piece of carbon paper duplicates what is written on Fig. 3 on Fig. 5. The repair tag and the two sheets all bear the same shop order number.

On the form shown in Fig. 3 are entered the name and address of the owner, the truck number, the date the truck was turned into the shop, and the instructions given by the owner or driver. Either the owner or the driver must then sign the sheet.

The sheet with Figs. 3 and 4 on it then goes to the agency accounting department, where the materials and labor are entered on it from the shop time cards and the stockroom requisitions. The costs are made up and the bill made out from this form.

Fig. 5 goes to the shop superintendent, who files it in a flexible-back binder while the job is in the shop, and when it is finished the owner or driver signs this form and it is then put in a permanent file for future reference.

After the job is finished, the inspection report shown in Fig. 6 is analyzed and another letter written to the owner, calling his attention to any minor repairs or adjustments located while the truck was in the shop. This letter is not always confined to repairs needed, but may call attention to abuses, such as careless driving, lack of lubrication, overloading, running in car tracks, etc. If the owner has not brought the truck in within a reasonable time after this letter is sent to him it is followed up with another letter.

Prevents Loss and Argument

It may appear at first glance that there is considerable red tape to this system, and that it could be simplified greatly, but there is this to say about it: It informs the owner exactly what shape his truck is in, tells him whether his truck is being properly driven and cared for, and as repair work is always estimated, and not charged for by the "material and labor" plan, it tells him exactly how much it is going to cost to put it in good shape.

The system protects the service station from unwarranted kicks by customers. If a truck is sent into the shop to have the front wheels aligned, and the tester finds out that the worm wheel in the axle is chewed up from lack of lubricant, then the owner is notified.

If he pays no attention to it, and the truck is put out of commission by the total failure of the worm wheel, and he says, "Why didn't you fix that when the truck was in the shop before?" the station has all the records to show that the owner was warned and that he did not send the truck back as suggested and paid no attention to the warning.

Trucks Come Back

It is interesting to note, however, that the cases of owners not heeding the warnings are few and far between. It may, of course, be some little time before they can spare the truck to have the repairs made, but they generally come back.

The result of this is that the trucks are kept running in better shape, the owners get better satisfaction from the trucks and, as a rule, troubles are found and remedied before they become serious enough to lay the truck up. The only drawback to the system so far is that such inspections and recommendations can only be made when a truck is brought into the station for some purpose. It is expected, as soon as conditions will permit, to have several men afield on motorcycles to inspect and report on any Federal trucks they find on the streets. This plan has been tried out by the Federal agency in St. Louis and has been very successful.

Spare Parts a Convenience

Another convenience to owners is spare parts, such as axles, radiators, wheels, etc., which have been made up from parts that have been salvaged from the shop.

For instance, if an owner comes in with a wrecked radiator, one of these spare radiators can be put on his truck and the truck can be running again in an hour, and the owner can use this radiator till his own radiator is repaired, which may take several days. A nominal charge is made for the use of these parts, based on the number of days used.

Extra magnetos are carried in the

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same way. While the "rental" charge on these spare parts brings in a small amount of income, it is really put on to get the spare parts back as soon as possible so that they can be ready to use on other trucks that may need them.

The practice is to make no charge for the spare parts during the time that it takes to repair the damaged member and to start the "rent" from the day the owner is notified that the part is repaired and ready to be put on his truck. If he knows that he will have to pay $1 a day for every day after that he uses the spare radiator, he will not wait for weeks to get his own radiator put back on the truck.

Shop Efficiency

Every effort is made to get the greatest efficiency out of the mechanics. A man who is especially good on engine work is kept on engine work all the time as far as practicable. The same policy is used on other parts of the truck. A colored porter is available for keeping the place cleaned up, cleaning the shafting, straightening up things and helping move things around when wanted. This allows mechanics to go on with their work without being interrupted by details that the porter can attend to.

While the building is small for the amount of work turned out, and only one floor is occupied as the shop and stockroom, yet things are arranged to get the greatest possible use out of the available space. One corner is shut off from the rest of the shop by a wire screen partition with a door in it.

This little room has two short benches, vises and tool cabinets, is near the windows and is used exclusively for engine work, such as scraping bearings, overhauling and rebuilding. Before the engines are brought to the room they are washed off on the washstand by a less experienced man, and then brought to the room on a portable crane and placed on one of the engine stands shown in Fig. 8. All necessary tools and wrenches for engine work are right in the room, handy to the mechanic, and he can go ahead and tear down the engine and build it up again without leaving the room except to get new parts from the stockroom.

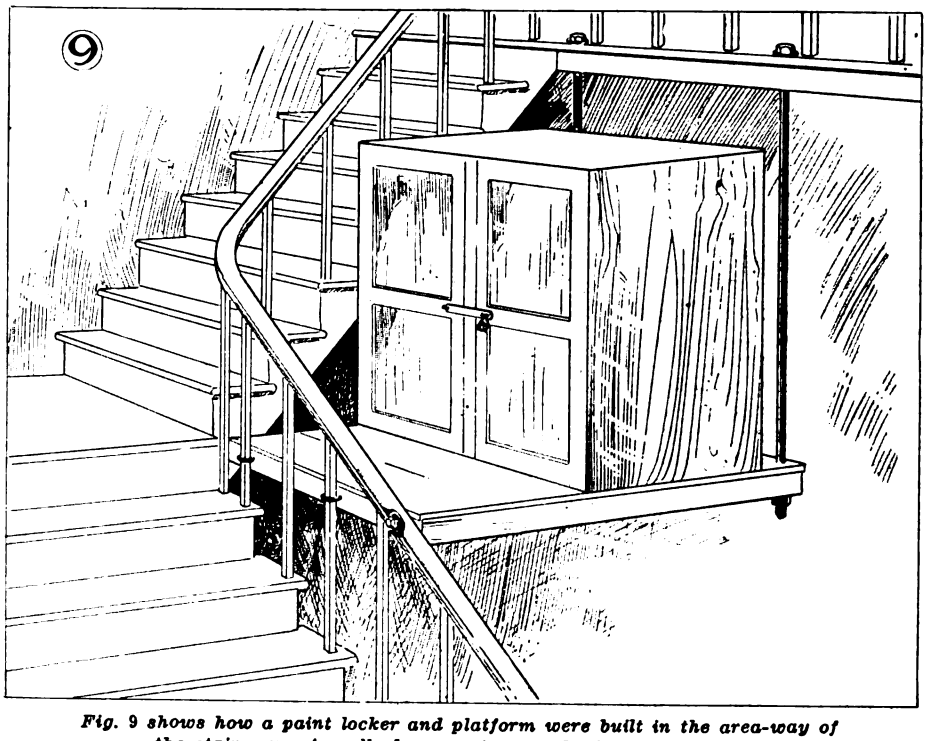


Fig. 9 shows how a paint locker and platform were built in the area-way of the stairway. A padlock prevents unauthorized use of paint

The engine stands were designed by Wright and built in the shop out of standard pipe fittings. They have removable castors in the bottom of the legs, and the stand can be turned around in any position to get the best light. When the engine is fastened in the cradle it is possible to turn it right side up or upside down as desired, and lock it in that position.

When the overhauling is done, the castors can be taken out of the legs, a radiator attached to the stand, and the engine can be tested right on the stand, the exhaust being piped outside. After testing, it can be run to the chassis on the portable crane, and there is not much chance of it coming back after it gets in the chassis.

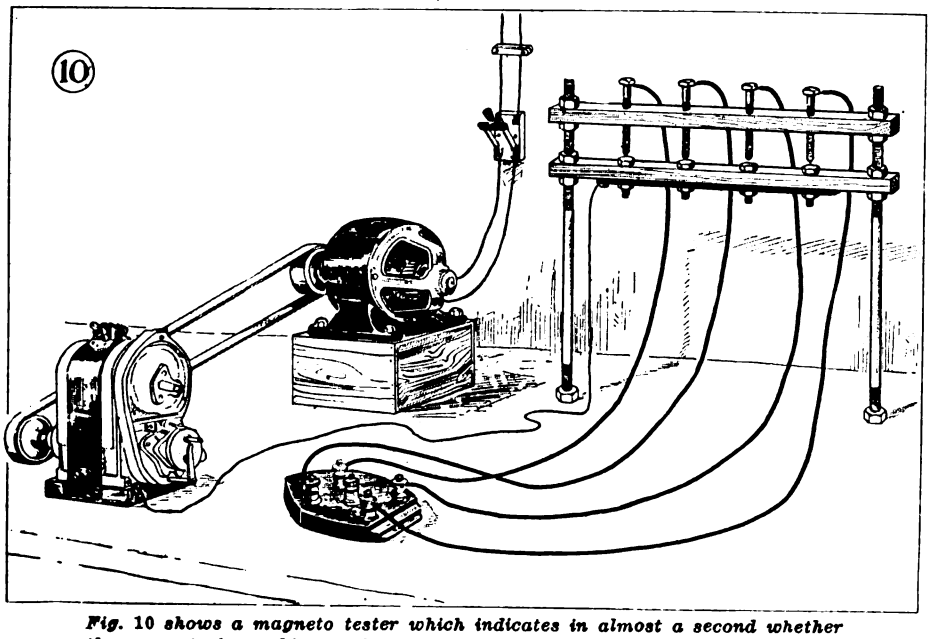


Fig. 10 shows a magneto tester which indicates in almost a second whether the magneto is working. The method has something on spinning an engine to see if it sparks

Saves 50 Gal. of Kerosene a Week

An economical and simple device is used for washing the oil and grease from parts. An ordinary oblong galvanized sink, with drain cock in the bottom, is mounted in a frame made of iron pipe and fittings. Castors allow the tank to be easily moved about, and a hinged cover which allows either side to be lifted up keeps dust and dirt out of the tank. A wire tray made of wire screening is suspended in the sink and is used to hold the smaller parts. The truck is shown in Fig. 7.

With this tank, the shop uses less than 6 gal. of kerosene a week compared to 50 or 60 gal. when the old method of cleaning off the parts at the drain with a paint brush and a pail of kerosene was employed. The tank, therefore more than paid for itself in a week.

No Tools Are Lost

A small tool stockroom has been constructed out of wire screening and is placed in a part of the shop that was behind a pillar and consequently not available for trucks, nor for any other purpose.

In this room are kept all the special tools, such as special wrenches, hub wrenches, C-clamps, taps, dies, reamers, jacks and drills. The tools are grouped together in a logical manner, axle tools being in one place, wheel tools in another and so on.

Each tool is either hung on one or more nails on the wall or is in a compartment in a long box which looks like a case that holds printer's type.

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The place where each tool belongs is neatly labeled with the name of the tool that belongs there, and when a tool is taken out the mechanic must leave a brass check with his number on it, the check being hung on the nail or placed in the compartment, and not removed until the tool is returned.

Although the tool room is only about 6 ft. wide and 15 ft. long, there are tools in it representing a cost of considerably over $1000.

Under the old method of allowing these special, and in many cases expensive, tools lying around, the cost of replacing lost or otherwise strayed tools was $500 or $600 per year.

With the new method no tools have had to be replaced in the past year except those which were used so much that they wore out.

A boy takes care of the toolroom and in addition serves out oil, grease and waste as it is needed. Everything is always in perfect order, and if the tool wanted is not in the room the brass check tells where it is.

Time Saved Testing Magnetos

On a small bench in the toolroom is a magneto tester which was made in the shop. It consists of a small electric motor operated by current from the lighting circuit, a magneto clamp and an arrangement of spark gaps representing the gaps in the spark plugs.

The apparatus is shown in Fig. 10. The motor is mounted on a wooden box and is started and stopped by a switch on the wall. A magneto base and clamp the same as is used on the engines is fastened to the bench so that the magneto coupling and the motor pulley are in line. A small flat belt drives the magneto.

The spark gaps are made from two strips of wood held apart and held to the bench by two iron rods, threaded so that nuts hold the rods to the bench and also space the wood strips. Through the top strip four holes are bored a little smaller than the pointed cap screws that go through them, the cap screws cutting their own thread in the wood. To the tops of these screws are attached the high-tension wires from the magneto.

Directly beneath these four screws are four smaller bolts grounded to one another with a strip of metal and grounded to the magneto with a wire. The gaps are adjustable by turning the cap screws. The gap should be set at about 1/16 in. When the magneto is driven by the motor, sparks should be observed at each of the gaps if the magneto is working properly.

Oil and Grease Charged to Jobs

A small room in one corner of the shop which contains the toilets is built only half way to the ceiling and the space on the top of this was previously wasted.

Oil and grease barrels were on the floor of the shop, open to anybody, and consequently a lot of oil was taken out that was never charged to the jobs. This oil and grease is now kept on top of this room, and as the only way to get up there is by a stairway in the tool room, every bit of oil is measured and every bit of grease weighed by the tool room boy, and charged to the job.

The barrels are placed on top of the room by means of a long skid. One end of the skid has hooks which go around a pipe at the edge of the top of the room, and the other end goes down to the floor. A barrel is placed on the lower end, and then the end is hoisted up with a block and tackle till it is above the level of the platform, when the barrel rolls down and is put where it belongs.

Use for a "Hole in the Air"

Room is at such a premium that even the areaway in an unused stairway to the basement has been utilized for a paint locker. The stairway may not be blocked up, on account of fire regulations. Therefore a platform was suspended as shown in Fig. 9 and there is sufficient room for the locker which holds paint, and a little platform to stand on. The locker is provided with a lock.

A very commodious stockroom is located in the front part of the shop, just in back of the office. A window and counter are located on the side of the stockroom near the door to the street for the convenience of owners and drivers buying parts to take with them. Brown paper and string are at hand to wrap the parts up in.

In the back end of the stockroom is another window with counter for the use of the mechanics desiring parts for the jobs they are working on. The idea of two windows is to prevent delay to the mechanics who would be compelled to wait their turn if they had to get the parts at the same window as the customers.

A maximum and minimum system is used in the stockroom. The maximum is determined as the greatest number of a certain part that it is estimated should be kept in stock. When the minimum number, below which it would be dangerous to go is reached, an order is put in to the factory for a sufficient number to bring the stock up to maximum again.

Parts Kept in Separate Bins

The parts are all kept in separate bins with their requisition numbers and descriptions on labels so that they can be easily seen. The parts that are most frequently called for are placed in the most accessible places. The bins run high up on the walls and are reached by a traveling ladder, similar to those used in some shoe stores.

As there is not sufficient demand at night for parts, the stockroom is not kept open, but a sufficient quantity of much used parts kept in the watchman's locker, and each morning the stock clerk checks up the parts used the night before, puts the requisitions with his others and replenishes the stock of parts in the locker.

There is not a great amount of machinery in the place, there not being such a large amount of this kind of work done. As the machinery is only in use a small portion of the time, it is driven by an electric motor suspended on a platform from the ceiling. When not in use the current is turned off.

A traveling crane hangs from an I-beam over the part of the shop where the chassis that are being repaired are placed. For hoisting in any other part of the shop, the portable crane is used.

Profit and Service

Service has been the prime object sought, and the matter of profit has been held secondary to service, but by stopping leaks, making mechanics do only skilled work and leaving ordinary work to those less skilled and less highly paid, making things work smoothly and checking everything up so that the boss won't have to say, "Jim, why in hell didn't you fix that rear wheel bearing on McCutchen's truck when it was in here?" the maximum service to the owner has been accomplished with a minimum of expense and so the service station shows a profit and not a loss.

Philadelphia Wins Golf Match

PHILADELPHIA, June 24—The Philadelphia Automobile Trade Association won the first of three intercity golf matches being played at the Whitemarsh Valley Country Club, taking six of the two-ball duels, having a rather wide margin in their favor in each one. W. Webb, of the Philadelphia team, with a card of 83, carried off the gross score prize, while James Clark, of New York, with a gross of 89 and a handicap of 17, took the net score honors with a total of 72. Webb also had the edge when it came to the special prize for the man taking the fewest number of putts, using but 32 on the full 18 holes. Victor Van Alstyne, New York, beat W. J. Fassitt, Philadelphia, by a comfortable margin. He also was runner-up for the low net total, with 74. W. H. Reynolds, the Aronimink star, now in the auto business, won his individual match, but had trouble with his putting and did no better than 85, three strokes behind Webb.

Uses 14-Page Newspaper Ad

SYRACUSE, N. Y., June 20—In order to emphasize the stability of its business, the H. Barcroft White Corp., handling the Nash and the recently acquired Locomobile, monopolized the entire 14-page automobile section of the Syracuse Herald, Sunday, June 9. The section was made up of both editorial and advertising matter and covered every phase and department of the company's activities. It is one of the largest if not the largest automobile ad ever run in this section of the country.

Ford Dealers Adopt War Service

ST. LOUIS, June 24—The Ford Dealers' Association has voted to adopt the N. A. D. A. War Service Schedule. Several of the Ford dealers are members of the Automobile Manufacturers' and Dealers' Association, and those have already adopted the war service schedule, which eliminates night and Sunday work. The other Ford dealers now come in.

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The editor of this department is glad to answer questions. In sending queries, always include copies of contracts, notes, etc., to which you refer.

THE LAW

By George F. Kaiser

As It Applies to
Dealers
Repairmen
Garagemen

What Is an "Exclusive Territory"?

Editor Motor World: I have the agency for a certain car in Venango County. This is the third season I have sold the car here, with the understanding that I was to be protected against anyone else selling in my territory. While the car company's contract prevents me from selling cars outside my territory, it does not prevent another agent from trespassing in this matter other than that his contract probably binds him to his territory the same as mine.

About a year ago the agent in question wanted to sell these cars in a little town in my territory, but near the county line adjoining his territory. After repeated requests I gave him permission to sell there on a fifty-fifty basis. He sold two or three cars, but I could not get any settlement from him for my share of the commission, so about six months later I notified him to refrain from selling these cars in my territory. He ignored this matter and since then I have taken the subject up with the company and the distributer through whom I handle these cars, and also with the distributer through whom he sells, but with no results. I will appreciate any suggestion, advice or opinion by early mail.—Subscriber.

Answer—Before anyone can give a proper opinion in a case of this kind your contract with the manufacturers must be carefully scrutinized. From your letter it would seem that the company could prevent the other agent from coming into your territory if it desired to, as the other man is undoubtedly restricted to certain territory just as you are. Of course your rights to 50 per cent of any commission on sales made with your consent depend on your agreement with the other dealer, and you can institute suit if you desire on your contract with him.

In one case a dealer had an agreement with the agent, giving him certain exclusive territory and allowing him 18 per cent discount on the list price, which was $900. The dealer deposited $250 and bought one car for $803 and received back $25 of his deposit. He found out thereafter that another party had sold a car in his territory and he demanded $162 as his commission.

When the agent refused to pay him this amount and cancelled most of his best territory, he brought suit for the $162 and the $225 remaining on deposit.

The court held that as the contract assigned a specific territory to him for a specific time, and as the territory was exclusively his for that time, he alone had the right to make sales therein. If he had made the sale he complained of he would have been entitled to $162 for his services, so when the agents allowed another to make a sale which properly should have been made by him, the dealer became entitled to his commissions according to his agreement.

In a case like this your local attorney should be retained immediately to handle matters for you.

Garage Signs to Prevent Fraud

Editor Motor World: What kind of sign should I put up in my garage to hold a man liable for taking a car out before paying a bill charged against him? A man left a car in my garage with instructions for me to do certain work on it, and I told him at the time that I didn't "trust." What can I do in such a case?—S. J. Oakes, West Enfield, Me.

Answer—It is a misdemeanor punishable by imprisonment for not exceeding 3 months or a fine of not exceeding $100 to defraud a garageman in your state. Garagemen must post the following law in a prominent place in their garage, however, before the act becomes effective:

PROTECTION OF GARAGE KEEPERS

(Revised Statutes, Chapter 128, Sec. 5)

Sec. 6. Defrauding owner of garage; printed copy of this section to be posted in garage. Whoever puts an automobile in a public garage or other place where automobiles are stored for hire, and without having an express agreement for credit, procures supplies, accessories or accommodation for himself or said automobile, and with intent to defraud the owner or keeper of said garage, removes or causes to be removed any such automobile from such garage without paying the reasonable charges due for repairs, supplies, accessories and accommodation furnished thereon, shall be punished by imprisonment not exceeding three months or by fine not exceeding one hundred dollars. In order for the owner or keeper of such a garage to obtain the benefits of this section, a printed copy thereof must be posted in some conspicuous place in said garage.

If a garageman has possession of a car he may hold it as security for his repair bill.

Equipment for Waste Gasoline

Editor Motor World: May I trouble you for information as to what concerns here in New York manufacture an appliance for taking care of "waste washing water and gasoline," which is required by the building code of Brooklyn, in garages?

I am drawing up plans for a row of ten small garages (private) to be placed on a corner lot measuring 25 x 100.

I believe the above mentioned appliance is called a form of trap which is set under the concrete floor of the garage.

I would also like to be advised as to the merits of this form of investing idle capital, or whom I might consult on this latter subject.—William Olsen, 626 Forty-sixth Street, Brooklyn, N. Y.

Answer—Motor World has handed me your letter of the 8th inst. with a request that I answer your inquiry direct.

If you only intend to put up a private garage, and are not going to put up a large public garage, you need pay no attention to the ordinance which provides for the installation of an "oil separator." This ordinance, by the way, was repealed some time ago. Personally I think very well of your plan to invest your idle capital in this way.

Fell Over Tow Rope

An interesting case regarding a person's liability for personal injuries while towing a broken down car was recently decided in New York.

It was held that where a man stumbles over a tow rope in crossing a street and is run over and killed by the automobile which is being towed there may be a recovery even if the chauffeur of the first car signalled with his horn, provided the injured person received no warning of the presence of the tow rope.

In May, 1915, while a man was crossing a street in New York City a motor car came toward him. The chauffeur blew his horn and the man stopped. The car passed at the rate of 3 to 4 miles per hour and, while a second car was 10 to 12 ft. behind, he attempted to pass between the two cars and stumbled over a tow rope which was about 1½ ft. from the ground and was run over and killed.

In a suit for damages for the man's death, the court decided that it was reasonable for a jury to bring in a verdict for damages on the theory that warning of the tow rope should have been given.

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Repairshop Shortcuts

From Motor World Machanics

No. 1718—REPAIR TAG CLIPS

Spring clips for holding repair tags and papers are made from sections of clock springs, holes being made in one end with a nail set and the clips fastened to the wall or board with screws through the holes. Clips from 2 to 4 in. long are most useful and the clips are bent so that the end that holds the paper is rounded out to prevent the sharp edges from catching and tearing when the paper is withdrawn.—Charles H. Willey, Concord, N. H.

No. 1719—VISE EQUALIZING JAW

A device for gripping irregular shaped work in the vise jaws is made from three pieces of metal, the top or jaw piece being half-round iron or brass to grip the work. This piece is supported by a little pillar made of bar stock with the ends turned down to fit holes in the top piece and in the spring which clamps over the jaw guide.—Charles H. Willey, Concord, N. H.

No. 1720—DRIP PAN FOR SHAFTING BEARING

An oil drip pan for shafting bearings is made by cutting a 5-gal. oil can in half diagonally and using the half with the screw top on it. The pan is suspended under the shafting bearing with wires from the corners of the pan going over the bearing. The screw cap is used for draining out the accumulated oil.—Charles H. Willey, Concord, N. H.

No. 1721—REMOVING DENT FROM A GASOLINE TANK

A dent can be removed from a gasoline tank by plugging the vent, thus making the tank air tight, filling the tank with water and then applying about 20 lb. air pressure through the feed pipe. A leather or wooden mallet is then used to tap gently around the outer edge of the dent. The pressure will force the dented part out in a few minutes.—Scott S. Bond, Gulfport, Miss.

No. 1722—FUNNEL STOPPER

A funnel stopper to prevent waste of oil and other liquids is made from a cork, a metal strip and a rod. The strip is secured to the top of the funnel and has a hole in the center through which passes the rod, formed into a ring at the top end, and threaded at the lower end. A cork to fit the hole in the funnel spout is screwed on the lower end of the rod. When the tank which is being filled is full the cork is pushed down and the funnel is lifted out with its contents saved.—Charles H. Willey, Concord, N. H.

No. 1723—VISE FOR DRILL PRESS

A vise for a drill press table is made by removing the stud of a machinist's vise and planing off the bottom at right angles to the jaw faces, using a planer, shaper or four jaw chuck in a lathe. The base of the vise is bolted to the table a little distance from the center so that by moving the face plate and arm on the press the vise can be placed under the drill.—W. C. Disbrow, Jr., New York City.

No. 1724—TUBE RACK VULCANIZER

A rack to hold up the ends of tubes while they are being vulcanized is made by boring rows of holes in a board and placing wooden pegs in the holes. One row of holes is arranged over each tube clamp and the holes can be about 1 in. apart so that different size tubes can be hung on them. The board is either hung from the ceiling or fastened to the wall, depending on the location of the tube plate.—C. H. McLean & Son, Newton, Iowa.

No. 1725—REMOVING VALVE CORE

To remove a valve core when the top nut on the core comes out without bringing the rest of the core puncture a hole in the tube 6 or 8 in. from the valve base, insert a motorcycle spoke which has been set upright in a vise and push the point up through the bottom of the valve stem. Work the valve stem up and down against the end of the spoke and the core will come out through the top of the stem. The hole in the tube is then vulcanized.—C. H. McLean & Son, Newton, Iowa.

No. 1726—CEMENTING PATCHES FOR VULCANIZING CASING

Frames 20 x 14 in. are made from plastering lath, four rubber bands are cut from old tubes and four fish hooks with the barbs removed are hung in each frame, one to the corner, using the rubber bands. The patches are hooked in the frames and then cemented. The frames have cup hooks in the top, and as soon as a patch is cemented, the frame is hung on a wire strung over the bench. The frames are hung up in the order in which they were cemented and they are used in the same order.—C. H. McLean & Son, Newton, Iowa.

No. 1727—MARKING COMPOUND FOR BEARING SCRAPING

A compound to replace Prussian blue for marking the high spots on bearings when scraping them is made by mixing lamp black in machine oil. Dry lamp black is mixed with very thick, clean oil and allowed to stand for several days, when the surplus oil is taken off the top. The compound then stands for a few more days and the process repeated. The result will be a thick, black paste which can be put in a shoe blacking can. When the bearing is rubbed with this compound and the shaft rotated as usual, a distinct black mark is made on all the high spots, and this mark cannot be rubbed off with either waste or the fingers, and does not disappear till it is scraped off.—Charles Dannhauser, New York City.

$1 a Helpful Kink

HOW often have you been compelled to rack your brain to overcome some difficulty? But when you did find a solution—what a satisfaction it was! Well, here's a chance for you to dig some of those life-savers out of their hiding places and put them to work for your fellow-craftsmen. Send them to Motor World. We will pay you a dollar for every one accepted for publication. The only requirements are these:

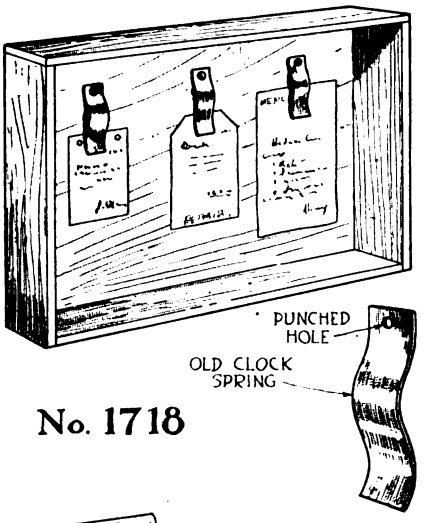
1—Describe the shortcut briefly but clearly, in few words.

2—Send a sketch, in pencil or pen, no matter how rough; our artists will finish the job.

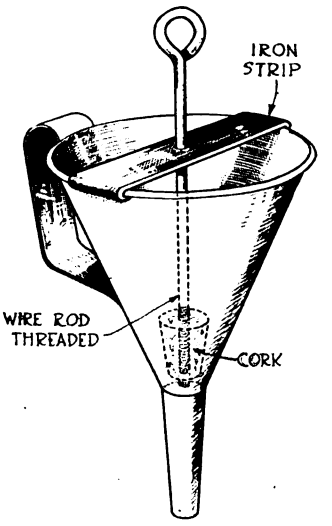
3—Write on ONE side of the paper only.

4—Sign your name and initials, the name of the company you are with and the town. Write plainly. If your name is unusual, print it in capital letters.

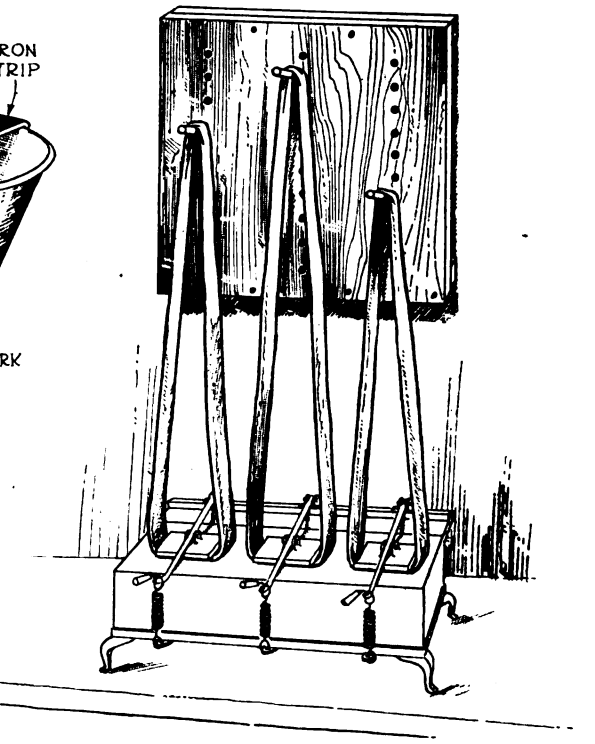
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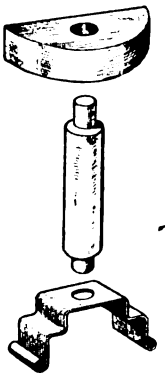
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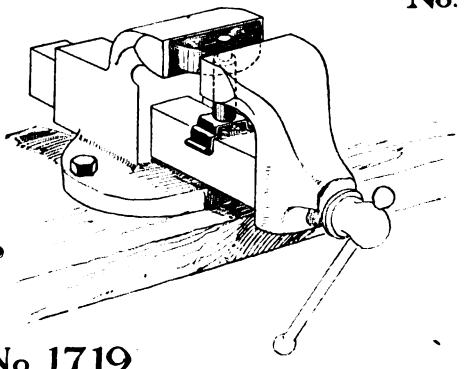


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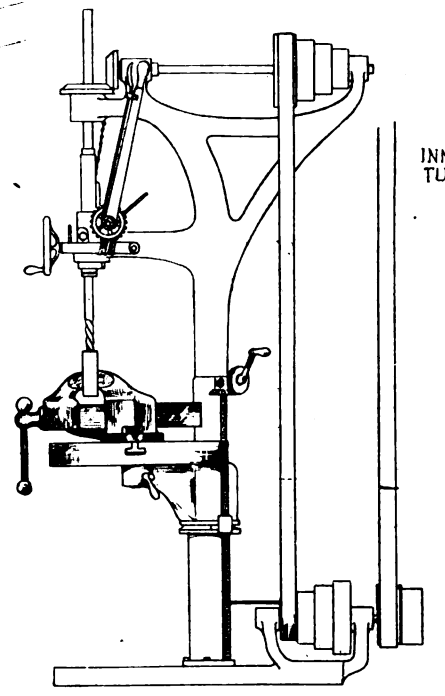


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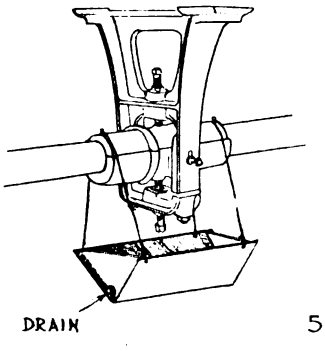


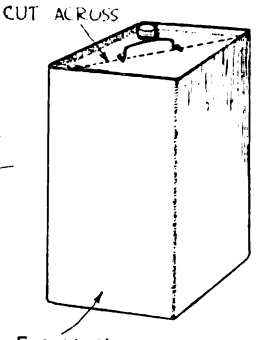


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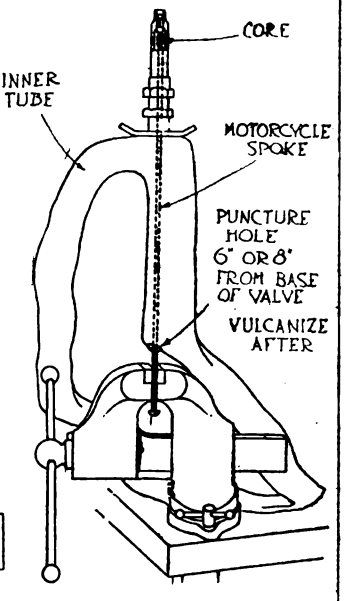


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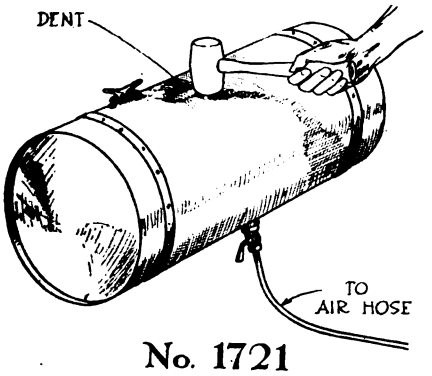




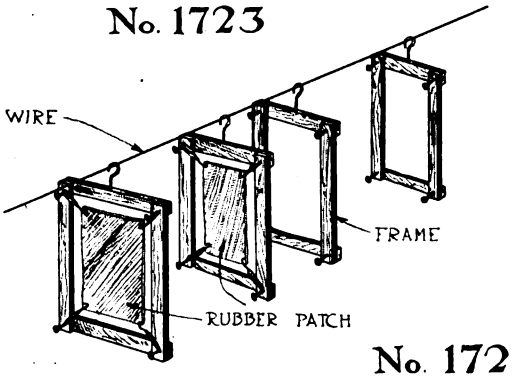
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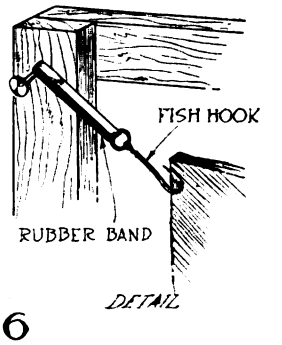


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Editorial Observation

Prove It or Shut Up!

NO one ever will be able to know how many thousands or millions of dollars the automobile industry has lost because of the wild rumors that have filled the air since America entered the war.

Incalculable damage has been done, and the industry has been powerless to prevent it.

Furthermore, there is a big and growing opinion in this industry that it has been "picked on." Perhaps this is a penalty for bigness. However, it seems to be a fact that the minute a rumor is born concerning this or that dire happening to this industry the news is flashed broadcast and the damage is done.

Denials are useless. It sometimes requires time to get to the root of things and ascertain the facts. The damage is done when the rumor is first flashed.

Whenever a public speaker wishes to mention salesmanship and merchandise he, nine times out of ten, lights on automobiles as his first choice. It probably is the first thing that comes to his mind because it is the article of merchandise he sees the most of every day, with the exception of wearing apparel. We are glad the motor car is so firmly intrenched in the public mind, but we are sorry this intrenchment has been made to work an injury.

So sensitive have automobile men become on this point that the word "pleasure car" is to them like a red flag to a bull—that is, to most of them. *There are a few who still use the term.*

So serious is the rumor situation that it is one of the bases of one of the big enterprises right now of the growing National Automobile Dealers' Association. At its meeting the other day in Chicago it set out to kill unfounded rumors regarding both the industry and the nation at large.

It passed a resolution which is good *if made effective,* which is to the effect that every automobile man, when confronted with a rumor, should ask the peddler of rumors if he can prove it. If he can't, request him to go into the silences. In other words: *"Prove it or shut up!"*

One day a rumor was told as fact by a man who ought to know concerning a certain war situation. The next day a statement from Washington headquarters in the daily newspapers said no such thing existed.

Rumors are about that are entirely at variance with the story of the geography of the Western front as it is chronicled daily in the newspapers.

The Red Cross has been slandered, the army has been maligned, everybody and everything that amounts to anything has been lied about until there are enough lies, if pro rated, to send the population of the whole world to eternal damnation.

We all seem to be a bit wishy-washy on this rumor subject. We let any self-assertive man make any old statement and get away with it. We seem to be afraid of our shadows.

But if we saw this same self-assertive man guiding a squad of armed Germans to our homes would we stand complacent and let him get away with it?

This rumor peddling is just as much an offense against us as direct aid to Germany. It hampers our war program. It affects our national morale. It is part of the insidious propaganda that delights the heart of the Prussian war lord. And WE let folks *get away with it.*

The next time you hear a man make a derogatory statement concerning our country and its affairs question him about it. If you don't want to ask him "Can you prove it?" do it this way:

Say: *"You know, I have been informed that a story quite similar to this is part of a certain propaganda that is intended to hamper our war activities. The government is very anxious to trace it and, if possible, learn its source. I shall appreciate it very much if you will tell me where you got this information."*

If the man gives you the name of the man who told him PASS IT ON TO THE DEPARTMENT OF JUSTICE. Carry it through. Don't back down. Take out your notebook and set down the name. Act as though you meant business—and MEAN IT.

Furthermore, don't be a rumor peddler yourself. Don't say "pleasure car." *There are men in this industry who still say it. Some of them were saying it on the veranda of the Homestead at the jobbers' convention at Hot Springs.* How can we expect others to drop the term when we don't drop it ourselves?

This industry needs some organized stiffening of backbones. We should clean our own house, forget "pleasure car," quit peddling rumors—and then insist that every other rumor peddler

PROVE IT OR SHUT UP!

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Letters from Readers

THIS page is for the use of MOTOR WORLD readers with something to say. Letters on subjects of interest to dealers, garagemen, repairmen and jobbers are always welcome.—EDITOR.

To Work Ten Hours

Editor Motor World: It might interest you to know that the employees of our mechanical departments at an organization meeting held the evening of the 7th inst. unanimously voted to work 10 hours during the summer months.

It can readily be seen that this sort of thing will materially reduce the number of men necessary to employ as well as hold down overheads and facilitate the work. It is a sure thing that a man can do more work in that extra hour by working straight through on a job than if he put in the same amount of time but left the car at night and put in the tenth hour the following day.

I consider this a very loyal and patriotic move on the part of our employees and trust the example will bring about like steps in other automobile repair houses.—Cadillac Motor Co. of Denver, P. E. Chamberlain, General Manager.

Here's Sunshine for You!

Editor Motor World: Generally speaking, Winnipeg is in a flourishing condition, practically every class of business doing well.

The sale of cars is surprisingly good, and in our case shows a decided increase over previous year's business.

We have experienced quite a few exciting times, between the war tax, threatened embargo and railroad conditions, but we have not only weathered all these storms, but are forging ahead successfully.

The imposition by the Canadian Government of the 10 per cent war tax on all cars slowed up sales for a while, and has no doubt affected the sale of the more expensive models, but people will get over this in a very short time, and it will be just like a general increase in price.

The threatened embargo, we see by to-day's paper, has become a reality, the Government prohibiting the importation of cars valued at $1,200 f.o.b. place of manufacture. We are not just sure whether "valued at" means factory list or wholesale price. In any case, it will make a big difference to a good many dealers.

Our country business has been very good with the smaller cars, but so far there is no indication of any brisk trade in the more expensive models. We have handled over 1000 Chevrolets in the Province of Manitoba since the beginning of our contract year.

A good part of our territory had poor crops for two seasons, which accounts for a good deal of this condition, and gasoline around 40 cents a gallon has a whole lot more to do with this tendency to buy smaller cars. Whatever the cause there is no doubt the farmer is buying the lighter and cheaper class of car, even though he has the money for something more expensive.

The big problem here has always been to get the dealers in the country to carry some cars during the winter months, so that they are prepared for the spring rush. This season, by reminding them of previous years' experience, a certain amount of education and assistance, we succeeded in getting out more cars in the winter months than in any previous year. The result is of course bigger sales and a reduction in the loss of business usually sustained through inability to fill orders.

The labor situation is a serious one, and is likely to get worse as the war continues, and yet we think we can see some good arising out of even this condition. By the use of a service coupon book of a definite value, according to the price of the car, and by educating our customers to take better care of their car, by closer attention to lubrication and storage battery, there is a marked reduction in the amount of service we are called upon to give, and a consequently greater satisfaction to the car owner.

Some time ago the dealers and distributers got together and agreed to cut out selling gasoline and oil and service work after 6 o'clock and on Sundays. This was quite a new thing, but has worked out splendidly for all concerned.

Last week the Breen Motor Co. started another innovation by closing their whole establishment at 1 o'clock on Saturdays. We advised all our customers of our intention to do this, and the garage was just as quiet on Saturday afternoon as it is on Sundays. Our experience in this direction might be useful to a good many other dealers and distributers who are worried by what they think is the necessity for being on the job day and night.

The value of the automobile and truck was very vividly demonstrated during the recent strike of the telephone and street railway employees. This strike a few years ago would have paralyzed the city's business, but, due to the large number of cars and trucks now in use here, and the splendid manner in which their owners used them in the public service, business went on, we might say, almost as usual.

In addition to our garage and office building, workshop and downtown showroom, we are compelled to get some more commodious office space.

For this purpose we have taken the corner store which was used as a cafe and lunch counter and are fitting it up as an office. Even with these various permanent buildings we find it necessary to rent two or three warehouses for storing cars during the winter months.—Breen Motor Co., Limited, Wm. White, Winnipeg, Man.

Puritan Not Affiliated with Abbott Corp.

Editor Motor World: Our attention has just been called to several articles appearing in the newspapers to the effect that the jigs, dies, patterns, etc., as well as the good will and repair parts of the Abbott Motor Co. were purchased by the Puritan Machine Co., which concern would furnish repairs for Abbott cars from Detroit.

We have not seen this in your publication but we thought it best to advise you at this time of the true status with regard to the Abbott company.

All jigs, dies, patterns, etc., of the Abbott Corp. (which corporation was successor to the Consolidated Car Co., Abbott-Detroit Motor Car Co., Abbott Motor Co., etc.) have been taken over by a new corporation, the Abbott Motor Car Co. This concern was formed to take over this material and also the entire service and repair department of the Abbott Corp.

The Abbott Motor Car Co. handles exclusively all repairs for Abbott cars. The Puritan Machine Co. did not purchase any of the service department or service department material of the Abbott Corp. In fact they have absolutely no connection in any way, shape or form with the Abbott company.—The Abbott Motor Car Co., Geo. B. Simon, Cleveland.

New Plant for Perma-Loc

PHILADELPHIA, PA., June 24—The Perma-Loc Mfg. Co., Wilkes-Barre and Scranton, Pa., which manufactures and assembles a variety of automobile accessories, has purchased for $35,000 the plant of the Wyoming Valley Cutlery Co., Wilkes-Barre, and will immediately take it over to manufacture the Perma-Loc heatless tire patch and line of accessories. New officers and directors of the company have just been elected as follows: President, F. S. Kuschel; vice-president, George Weaver; secretary, Frank Guppy; treasurer, G. B. Myers. C. A. Hanopp, Boston, and Frank Weaver, Wilkes-Barre, also were elected directors. F. M. Harrington, formerly in charge of the general sales office in Scranton, will be general manager, and the sales office will be moved to Wilkes-Barre, branches being established in Philadelphia, Pittsburgh, Scranton and Altoona, Pa., and Boston.

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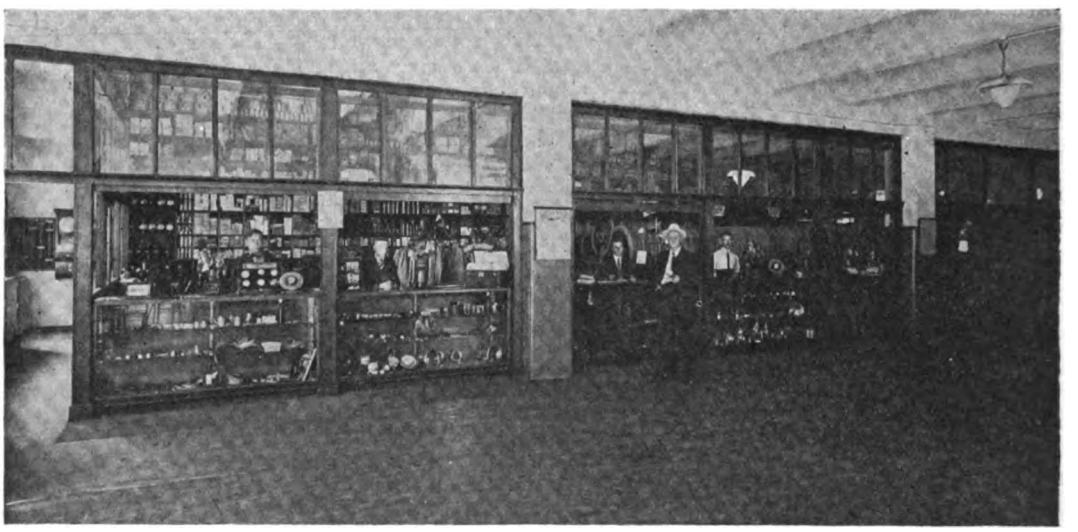
Where Hyslop Bros.
Job Accessories in the Dominion





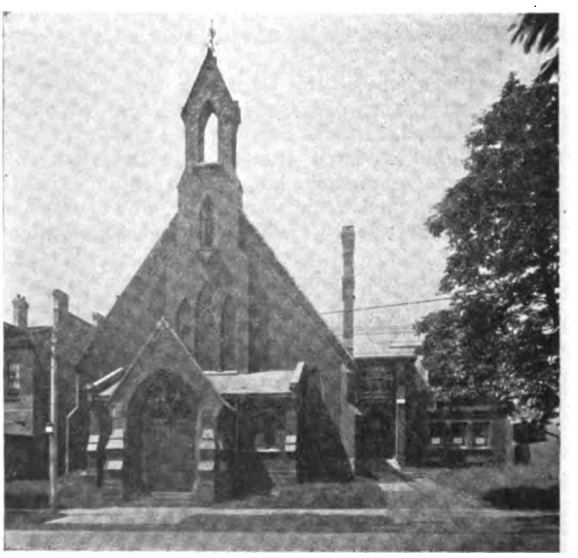
To handle the Hyslop business a large office organization is necessary. The furniture and fixtures are modern and the offices are efficiently arranged

The Hyslop building was among the first concrete buildings erected in Toronto and a close study of the interior views shown here will reveal the lack of confidence that early builders had in concrete. There are beams in the ceiling strong enough to hold all the goods Hyslop will job in many years. The company had its beginning as a bicycle house and still retains that business, which thrives and prospers. The building is modern, light and well ventilated and is one of the fine layouts in the automotive equipment trade



On the ground floor Hyslop maintains what might be called the retail store but which is largely used as a display store for visiting dealers. The large space in the foreground is the Cadillac salesroom. Hyslop distributes that car in all Canada east of Winnipeg





When crowded for warehouse space Hyslop rented an abandoned church. The exterior looks like a church, but the interior has some resemblance to war-zone treatment

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The RETAIL NEWS

EAST

New Truck Dealers

Home Garage Corp. (Grant).....Baltimore
Young Motor Car Co. (Grant), Hagerstown, Md.
Middlesex Motor Co. (Corliss).....Boston
American Motor Car Co.. (Acason), Fall River, Mass.
Electric Automobile Service (Ward), Springfield, Mass.
West Penn Duplex Truck Co. (Grant), Pittsburgh
Charles Barre (Kissel).....Pawtucket, R. I.
Herbert H. Smith (Kissel)...Waitsfield, Vt.

MOUNTAIN

The Ideal Auto & Machine Co., Sterling, Colo., is erecting a new building.

S. R. Roberts, Riverton, Wyo., has bought the Riverton garage from Fairbanks & Shipton.

New Truck Dealers

Platt-Fawcett Co. (Wilson).....Denver
A. C. Gillet (Kissel).....Ft. Morgan, Col.
Miller Brothers & Co. (Kissel)..Lamar, Col.
R. B. Jones (Kissel).....Limon, Colo.
A. P. Jackson (Kissel).....Casper, Wyo.

New Garages

Frank Allen.....Framington, Colo.
G. E. Smith.....Sterling, Colo.
Speits & McShane.....Sterling, Colo.

SOUTH

New Truck Dealers

Shirley & Baily (Kissel).....Aliceville, Ala.
Brownell Auto Co. (Kissel).Birmingham, Ala.
L. Y. Sadler (Kissel).....Camden, Ala.
Burk Auto Co. (Kissel).....Decatur, Ala.
Mutual Auto Co. (Kissel).....Dothan, Ala.
Elliott Motor Co. (Kissel).....Gadsden, Ala.
Thomas Sales Co. (Kissel).....Jasper, Ala.
John M. Summers (Kissel).Russellville, Ala.
W. R. Reed (Kissel).....Tuscaloosa, Ala.
Florida Briscoe Co. (Grant).Jacksonville, Fla.
Brooks Motor Co. (Standard)....Atlanta, Ga.
Thomas Garage (Auto Horse), Louisville, Ky.
Columbia Sales Agency (Grant), Columbia, S. C.
Huntzicker & Hughes (United States), Memphis
West Tennessee Motor Co. (Auto Horse), Memphis
Street Electric Co. (Ward).....Memphis
Warner Sales Co. (Wilson)..Nashville, Tenn.
Myers Motor Co. (Columbia), Lynchburg, Va.

MIDDLE WEST

H. L. Kutscher, Springfield, Ill., has entered into partnership with his brother, W. H. Kutscher, who formerly conducted a garage in Bloomington, Ill. The two will enlarge the garage and combine their efforts.

New Truck Dealers

Knauf & Strohm (Auto Horse).....Chicago
Capitol Truck Co. (Auto Horse).Indianapolis
L. Pettyjohn Co. (Ward).....Terre Haute
F. W. Stolte (Grant).....Wayne, Ind.
E. T. Binns (Columbia).....Bryan, Ohio
Barger Mitchell Motor Co. (Auto Horse). Toledo
Martin Brothers Co. (Columbia).....Toledo
Acme Truck Sales Co., Chicago. Acme.
Charles F. D. Zeitler, Chicago. Traffic.
Cadillac Co. of Decatur, Decatur, Ill. Federal.
R. Y. McIntyre, Murdock, Ill. Traffic.
Pinkerton Motor Car Co., Peoria, Ill. Federal.
Morris Adler-Moller Co., Quincy, Ill. Traffic.
Fred Neumeister, Rockford, Ill. Federal.
Traffic Truck Co., Terre Haute, Ind. Traffic.
Houghton-Myers, Inc., Detroit. Stegeman.
W. W. Lung, Kalamazoo, Mich. Federal.
Prospect Buick Co., Akron, Ohio. Traffic.
Canton Motor Car Co., Canton, Ohio. Federal.
Dayton Buick Co., Dayton, Ohio. Federal.
City Auto & Service Co., Youngstown, Ohio. Traffic.
Brad Ford Motor Co., Appleton, Wis. Stegeman.
Wisconsin Auto Sales Co., Fond du Lac, Wis. Stegeman.
G. E. Hughes, Janesville, Wis. Stegeman.
Dicke Motor Car Co., Manitowoc, Wis. Stegeman.
Upham-Schacht, Inc., Milwaukee. Traffic.
Winnebago Auto Co., Oshkosh, Wis. Stegeman.
Balck Auto Co., Sheboygan, Wis. Stegeman.
G. A. Gullikson Co., Stevens Point, Wis. Stegeman.

NORTHWEST

Oscar Nelson, Bode, Iowa, has sold his interest in the Bode Auto Co. to Nelson Nelson and Oscar Dale.

W. J. Roden, Carroll, Iowa, has opened a repairshop.

The Garlock-Stutz Co., Des Moines, Iowa, has moved to new quarters at Tenth and Walnut Streets, recently vacated by the Consigny Truck Co.

C. H. Reuber, Hawkeye, Iowa, has sold his garage to S. A. Shonkwiler, Spencer, Iowa.

Jacob Mack and Robert Davis, Petersburg, Iowa, have opened a repairshop.

Klay & Ver Doorn, Rock Valley, Iowa, have bought the repairshop of Bogealjon & Brahm.

Manly G. Martin, Sac City, Iowa, has bought the vulcanizing business of Leo H. Nokes.

Jos. Flynn, Wheatland, Iowa, has bought the garage of Holt & Hauer.

Ernest Keltzer, Amboy, Minn., has bought the William Nelson Garage.

G. E. Varner, Buffalo, Minn., has bought the Depot Garage from F. A. Thomas.

George Volz has opened a repairshop in Crookston, Minn.

Harry Peterson, Lake Park, Minn., has bought a half interest in the Pioneer Garage with Gilbert Haudegard.

Andrew Regenscheid has opened a repairshop in Le Sueur Center, Minn.

H. G. Bjornsrud has opened a repairshop in Mabel, Minn.

I. D. Thomas, Mankato, Minn., and **Artis Busby**, Vernon Center, Minn., have leased the Motor Inn Garage at St. Peter, Minn.

The Long Motor Co., 1400 Hennepin Avenue, Minneapolis, has opened quarters and is conducting a used car business.

J. L. Grass has opened a repairshop in Owatonna, Minn.

Reuben Kaplan, Owatonna, Minn., has bought the repairshop of L. P. Peterson.

C. E. Gravel, Pierz, Minn., has bought the Thenies Garage.

O. W. Liljegren, Parkers Prairie, Minn., has taken over the interest of John Magnuson in the Parkers Prairie Garage.

E. M. Brines, Rushmore, Minn., has bought the interest of his partner, A. I. Metcalf, in their garage.

H. J. Greenwalt, Stillwater, Minn., has leased his garage to W. W. Morse of Minneapolis.

The Paramount Auto Exchange, 173 East Sixth Street, St. Paul, has moved to larger quarters at 257 West Seventh Street.

C. P. Miller, Waterville, Minn., has taken over the Wendelschafer Garage.

Grant Ross, Wesbrook, Minn., has bought the Peterson & Ludvigson Garage.

William Trudgeon has opened a tireshop in Butte, Mont.

The Lewistown Auto Co., Lewiston, Mont., has been sold to the Hendricks Auto Co., Moore, Mont.

J. F. Fitzgerald has opened a tire shop in Stillwater, Mont.

T. Miller, Alliance, Neb., has bought the interest of James Keller in the Miller-Coursey Garage.

L. A. Newman, Auburn, Neb., has sold his garage to W. Gutzmer, Newton, Kan., who will take on the Hupmobile as an additional line.

F. O. Wixon, Beaver City, Neb., has opened a repairshop.

W. F. Brune, Chappell, Neb., has opened a repairshop.

W. C. Korell and W. Kannow, Culbertson, Neb., have bought the Central Garage from Edgar Buzzell. The new firm will be styled Korell & Kannow.

Rice & Reynolds, Exeter, Neb., have leased the repairshop of the O.L.D. Garage.

John Atwood, Fairmont, Neb., has bought the White Auto Co. garage.

W. G. Mercer, Fremont, Neb., has bought the Fremont Garage.

H. F. McOstrich, E. F. Zimmerman and E. L. Roberts have bought the garage of E. E. Davis, Gothenburg, Neb.

The Haws Motor Co., Hastings, Neb., is moving to a new garage.

The Hastings Motor Co., Hastings, Neb., is moving to new quarters on Lincoln Avenue.

T. H. Reid, Holbrook, Neb., has sold the Reif Garage to H. G. Miller and it will be conducted under the style Reid Garage Co.

Clyde Maddox, Kearney, Neb., has sold his interest in the Kearney Tire & Rubber Co.

George Kroening, Lawrence, Neb., has bought the interest of Mint Marshall in the Lawrence Garage.

The Buckstaff Auto Co., Lincoln, Neb., has moved into new quarters at Eleventh and Q streets.

The Morris Motor & Tractor Co., Lincoln, Neb., has opened an office and salesroom at 1229 P Street. The new company was incorporated for the sale of tractors, and will handle the Frick.

W. M. Fyffe, McCook, Neb., have bought a half interest in the Red Willow Auto Co.

Arnold & Blain, Minatare, Neb., have bought the West Side Garage.

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Ezra Carey has repurchased the garage of John Petring, Nebraska City, Neb., which he sold a year ago.

Weber & Talbot, Nebraska City, Neb., have bought the Motor Inn.

Whitall & Best, Norfolk, Neb., have bought the garage of E. Engle.

A. N. Durbin and Walter Kochen, North Platte, Neb., have bought the interest of J. L. Souder in the Durbin Auto Co.

The Jones-Hansen Cadillac Co., Omaha, has opened a branch house at Lincoln, Neb.

R. C. Peterson, Omaha, has bought the Dill Motor Car Co., 2209 Farnam Street. The firm's new style is R. C. Peterson Motor Car Co.

The Auto Electric Service Co., Omaha, will move into the quarters vacated by the H. Pelton Auto Co. when the latter moves into the new building it has under construction at Twenty-first and Farnam streets.

E. Carey, Peru, Neb., has bought the Peru garage.

Kleopfer Brothers, Riverside, Iowa, have bought the Ford garage.

A. W. Baughman, Rockwell City, Iowa, has bought the City Garage.

The Peterson Auto Co., Seward, Neb., has bought the Franklin garage.

Raymond Patterson and **Leo Stahlman,** Stanton, Neb., have bought the garage of A. V. Johnson.

H. C. Bjerrum, Staplehurst, Neb., has bought the Staplehurst Garage.

E. Nelson, Wymore, Neb., has opened a repairshop.

H. C. Graves has sold a half interest in the Day & Night Garage, York, Neb., to C. C. Beck.

Otto Stremikes, Bantry, N. D., has bought a half interest in the Sam Taylor Garage.

G. F. Noble, Beach, N. D., has bought the L. L. Parsons machine shop.

Adolph Sauer has opened a repairshop in Fessenden, N. D.

Olaf Kongslie, Fortuna, N. D., has sold his garage to P. J. Quarne.

Charles Goffe, Hannaford, N. D., has bought the garage and repairshop of L. B. Moore.

The McGregor Garage, McGregor, N. D., has been sold to J. L. Moore of Ray, N. D.

Leo Wysoski has opened a tire repairshop in Minto, N. D.

Andrew Wald has opened a tire repairshop in New England, N. D.

The Park River Motor & Machinery Co., Park River, N. D., has succeeded the Groven Garage.

Merritt Williamson, Bonesteel, S. D., has bought the W. N. Redmon garage.

The Egan Motor Sales Co., Egan, S. D., has bought the Davis Garage.

Harris & Brougham have opened a repairshop in Groton, S. D.

D. Z. Zmith, Humboldt, S. D., has bought a half interest with J. Schwarten in the Humboldt Tire Repairshop.

Peter Schekel, Lake Andes, S. D., has bought the George and Louis Schekel interest in the Lakeside Auto Co.

Harold Lyle, Manchester, S. D., has bought the Henry Michel Garage.

N. O. Toulin, Mobridge, S. D., bought the M. Sorensen Garage.

Elmer LaGrange, Mobridge, S. D., has bought a half interest in the A. H. Brown Garage.

The W. E. Stevens Co., Main Avenue and Eleventh Street, Sioux Falls, S. D., has bought the Jacquith Motor Co. and has become exclusive distributer of the Republic truck in South Dakota and adjacent territory in Minnesota and Iowa.

New Truck Dealers.

Des Moines Buick Co. (Auto Horse), Des Moines
Payne Motor Co. (Wilson) .....Des Moines
Ward Electric Garage Co. (Ward), Des Moines
Miller Motor Car Co. (Grant), Waterloo, Ia.
G. H. Scroggin (Kissel)..Broken Bow, Neb.
J. B. Osborn & Co. (Columbia) Broken Bow, Neb.
W. L. Huffman Automobile Co. (Wilson), Omaha
Western Motor Car Co. (Columbia)..Omaha
W. E. Stevens Co. (Republic) Sioux Falls, S. D.

New Garages.

C. E. Nutt.....Castana, Iowa
Giant Mfg. Co.....Council Bluffs, Iowa
Robertson Storage Battery Co., Cedar Rapids, Iowa
P. K. Jensen.....Exira, Iowa
Hakes & Nelson.....Manson, Iowa
Manhattan Oil Co.....Spencer, Iowa
A. H. Nerdahl.....Granite Falls, Minn.
William Pelkey.....Hendrum, Minn.
E. O. Mitchell.....Ruthton, Minn.
B. Schneider.....Minneapolis
S. A. Wooldrik.....Sleepy Eye, Minn.
B. F. Mowry.....Springfield, Minn.
R. M. Gilbert.....Warren, Minn.
Robert Evans.....Grassy Butte, Mont.
George Ortwein.....Moore, Mont.
Fred H. Bose.....Berlin, Neb.
Ray Ferry.....Edison, Neb.
Shaw & Bahr.....Falls City, Neb.
Grand Island Motor Co...Grand Island, Neb.
Carl Bogie.....Hartington, Neb.
M. H. Barnes.....Hastings, Neb.
Sam Coniglio, Thirteenth and P Streets, Lincoln, Neb.
Andrew Peterson.....Minden, Neb.
John Ottenstein.....North Platte, Neb.
George Cook (addition).....Plainview, Neb.
Yost Auto Co.....Sutton, Neb.
Welch Brothers (addition)..Tekamah, Neb.
C. H. Smith (addition).....Tekamah, Neb.
Saunders County Motor Co....Wahoo, Neb.
Wiliam Bruns.....Crete, N. D.
E. H. Bjorum.....Havelock, N. D.
Frank Schildberger.....Pisek, N. D.
M. Birrenkott & Bro.....Selfridge, N. D.
Frank Eberley.....Wahpeton, N. D.
Henry Porter.....Walhall, N. D.
J. Leinan (addition).....Wyndmere, N. D.
A. J. Waltner.....Freeman, S. D.
C. E. Hoag.....Huron, S. D.
Zweber Bros.....Lebanon, S. D.
Halder Larson.....Ortley, S. D.
Swanson & Storster.....Roslyn, S. D.

SOUTHWEST.

John A. Dolsen, Nogales, Ariz., has bought from Karne Brothers the Ford Garage, Service Station and Repairshop.

Bruce Brothers, Ft. Smith, Ark., are erecting an addition to their building at North Ninth and A Streets.

Walter W. Penrose, Arkansas City, Kan., has bought the interest of his partner, L. G. Iglehart, in their repair business.

Cecil Savage, Burden, Kan., has bought the garage on South Main Street from Hillier & Ledgerwood.

John Morris and **R. Witt,** Douglas, Kan., have bought the equipment and business of the Handy Motor Co.

Fred Bailie, Fredonia, Kan., has bought the interest of his partner, Joe Ralph, in the Ozark Trail Garage.

W. R. Archer, Great Bend, Kan., has bought the Willard Service Station from G. E. Gilmore.

Alex Schueler, Jr., John Staab and **Ferdinand Staab,** Hays City, Kan., have bought the Bemis Garage.

Arthur Crouch, Herrington, Kan., has bought the tire business of F. W. Humberger & Son.

Henry Minton, Marion, Kan., has bought the Tibs Garage from Al Fishburn.

New Truck Dealers

Henderson Rood, Stuttgart, Ark. Traffic.
George G. Hamilton Motor Truck Co., Kansas City. Traffic.
T. A. Hickerson, Sedalia, Mo. Traffic.
Weber Implement & Auto Co., St. Louis. Armleder.
Brandle Motors Co., St. Louis. Traffic.
Lindell-Locust Cutoff, St. Louis. Traffic.
Bailey Motor Car Co., Roswell, N. M. Duplex.

PACIFIC COAST

R. R. Sobey has moved the Midway Garage to new quarters in Galt, Cal.

George Brothers, Grass Valley, Cal., have added an accessory department and have taken on the Dodge Brothers car.

H. E. James has opened a vulcanizing shop at Grass Valley, Cal.

John Champion has purchased the Alpha Garage, Nevada City, Cal.

The Fruitvale Garage, Oakland, Cal., has moved to new quarters at 3241 East Fourteenth Street.

Edward Taylor has purchased the Lincoln Garage, Oakland, Cal.

John Heck, formerly associated with the Central Garage, San Diego, has bought an interest in the San Diego Tire & Vulcanizing Co.

J. B. Wallihan has taken over the garage at 868 Sixteenth Street, San Diego, and will conduct it under the style Stanley Garage.

C. R. Newby has taken over the Maxwell Agency at San Diego.

The Hibner-Alexander Co. have opened a new agency for Cadillac and Paige cars at Broadway and Fifteenth Street, San Diego.

B. W. Dixon has opened salesrooms in Stockton, Cal., for the Allen and Briscoe cars and Vim truck.

M. D. Dolson and **R. W. Davis** have opened a repairshop on East Channel Street, Stockton, Cal.

D. W. Russell has purchased the interest of C. H. Broadhurst in the tire store at 245 East Channel Street, Stockton, Cal. The business will be conducted under the style Keith & Russell.

W. R. Delay, Velie distributer in Medford, Ore., will go to Portland to take over the business of D. C. Warren of the Warren Motor Car Co., who has entered government service.

CANADA
New Truck Dealers

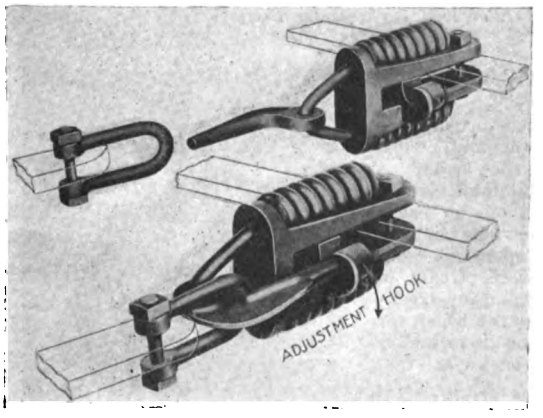
Mutual Motors, Ltd., Hamilton, Ont. Federal.
Mack E. Besse, Montreal. Federal.
Harrisburg Welding & Brazing Co., Harrisburg, Pa. Rainier.
Overland-Harrisburg Co., Harrisburg, Pa. Traffic.
J. P. Heefner, Mt. Union, Pa. Traffic.
Bell Motor Co., Philadelphia. Stegeman.
Wilmer Sales Co., Pittsburgh. Stegeman.
Iron City Motors Co., Pittsburgh. Traffic.
Stellar Motor Co., Pittsburgh. Rainier.
Farm Truck & Tractor Co., Scranton, Pa. Rainier.
Mott Cooley Co., Williamsport, Pa. Traffic.

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Accessories

GREER SAFETY-RELEASE CLEVIS

A tractor hitch that automatically uncouples the plow from the tractor when rocks, stumps, or other obstruction are encountered by the plow. The main body of the clevis attaches to the tractor with a bolt, and has a slidable adjustment hook that catches the end of the coupling hook. The other end of the coupling hook is held by a U-bolt which passes through the end of the main part of the clevis and is held in position by two coil springs. When the pull becomes excessive the springs are compressed as the U-bolt moves backward, and when pulled far enough back the coupling hook slips out of the adjustment hook and uncouples the plow. Adjustment hook can be set for different drawbar pulls. Weight, 17 lb.; price, $8.50.—Erwin Greer Automobile Co., 1519-1521 Wabash Avenue, Chicago.



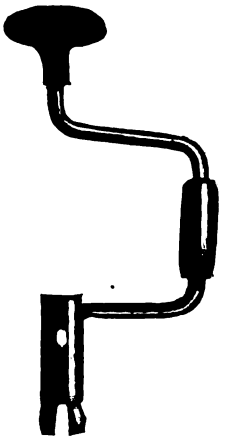
STADCO SPARK PLUG WRENCH

A double-ended spark-plug wrench, in which each end has two size openings, making four sizes in all. It is claimed that these four sizes will fit almost every spark plug made. Price, 25 cents. Packed 1 dozen in a box.—Stadeker Metal Specialty Co., 358 West Madison Street, Chicago.



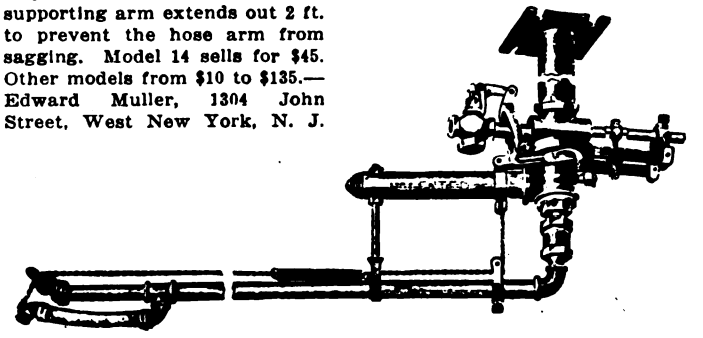
UTILITY UNIVERSAL RIM WRENCH.

A brace wrench in which the jaws are conical and slide into the cylindrical barrel, thus allowing the jaws to grip any size nut. Finished in nickel and black enamel, and small enough to go in the tool box without folding. Price $1.50.—Hill Pump Valve Co., Archer Avenue & Canal Street, Chicago.



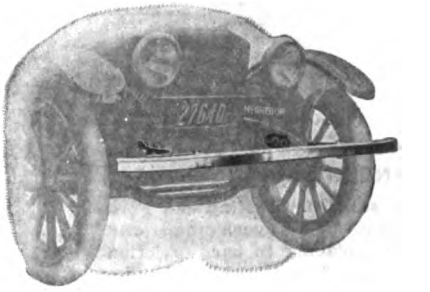
MULLER OVERHEAD WASHER

In this overhead washer the water is controlled by pulling on the hose. A slight pull turns on a little water, and the valve is held in that position by a ratchet till more water is needed, when a stronger pull will turn more water on. An upward lift of the hose releases the ratchet and shuts the water off. The hose arm, which swivels all the way around, is 6 ft. long, and a supporting arm extends out 2 ft. to prevent the hose arm from sagging. Model 14 sells for $45. Other models from $10 to $135.—Edward Muller, 1304 John Street, West New York, N. J.



GATES VULCO-CORD FAN BELT

A fan belt standardized into nine sizes, which will cover all car requirements. It is endless, does not stretch, made of 10-ply cord, and holds under a light tension. Each belt is identified by a paper label which gives the number of the belt and the models and makes of cars that it will fit.—Colorado Tire & Leather Co., Denver.



DETROIT ENGINE GOVERNOR FOR FORDS

An engine speed governor for Fords which replaces the roller and roller arm in the timer. The device has a weighted member which, when the speed reaches 1400-1600 r.p.m. is thrown out by centrifugal force, pulling the roller away so that it does not touch the contact, consequently cutting off the ignition. When the engine slows down, the roller goes back to normal and makes contact. Drivers cannot tamper with the device or alter it. Price $5.—Detroit Motor Governor Corp., Detroit.



McGREGOR COMBINATION SPRING BUMPER

A spring bumper with a rigid bar of channel, diamond, round or tee shape. The spring members are the brackets, and are formed of high carbon-steel spring stock, shaped in a curve to absorb the blow. The bumpers are made to fit all makes of cars, except Ford, Chevrolet, Jackson and Franklin, special bumpers being provided for these makes. Furnished in black, nickel, or black with nickel trim, at prices from $8 to $12, depending on style of bars and finish.—U. S. Auto Bumper Co., 115-117 East Thirtieth Street, Chicago.

HARWARD PISTON RING

The Harward ring is a one-piece concentric design with an interlocking and underlapped joint. In the outer periphery of the ring there are a number of shallow grooves which slightly overlap and serve to carry a supply of oil, thus providing constant and thorough lubrication and operating as an oil seal. An eccentric groove is cut in the inner surface of the ring, though it leaves the full edge bearing surface on both sides.—Harward Mfg. Co., 3939 Magnolia Avenue, St. Louis.

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Amesbilt Bodies for Fords

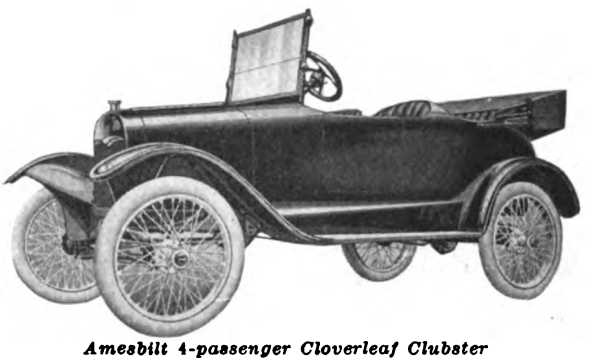
Three styles of bodies for Fords—a speedster, a five-passenger body and a four-passenger cloverleaf clubster—are made by the F. A. Ames Co., Inc., Owensboro, Ky. These bodies are complete with hood, radiator shell, fenders, skirts, runningboards, windshield, top and curtains and are supplied with all necessary fittings ready to attach to the Ford chassis. The frames are selected hardwood with mortised, screwed and glued joints reinforced and ironed. The sheet-metal covering is 20-gage cold-rolled steel, the crown fenders being of the same gage and material. The hoods are streamline with bullnose radiator shells. Upholstery is of mule-skin.

The speedster has a tapered and racy appearance, the rear deck being pointed. The body sets lower than the regular Ford body, has ample leg room, deep cushion and the back is upholstered and has coiled springs. No doors are used, the body being cut out at that point in a curve from the back of the seat and blending into the cowl line. A square-cut khaki cloth top and curtains are provided, which are quickly removable and can be folded into the rear tool compartment. The windshield is cowl-fitting and ventilating. The regular Ford gasoline tank is used. The standard color is a rich red, but other colors can be had for a small extra cost. Price, $140.

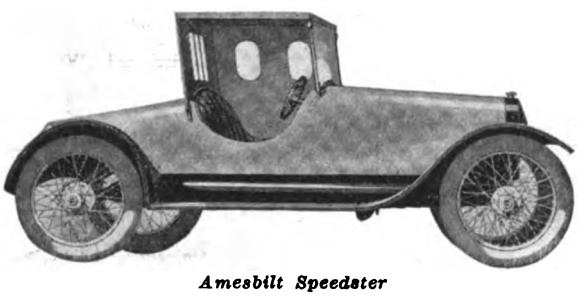
The five-passenger body is also streamline in shape, sets low, has four doors with concealed hinges and a 20-in. opening in each door. The top is a one-man mohair with Jiffy curtains and dust hood. The ventilating windshield fits the cowl and is clear vision. A 15-gal. gasoline tank is fitted to the rear of the body by tank braces and feed to the carbureter is by Stewart vacuum system. The weight is 500 lb. (950 lb. crated), and standard color is a rich glossy black, though other colors may be had as extras. Price, $260.

• The four-passenger cloverleaf clubster has divided front seats and has the same equipment as the five-passenger, except that the regular Ford tank is used and there is no vacuum system. The aisle between the front seats is 7½ in. wide.

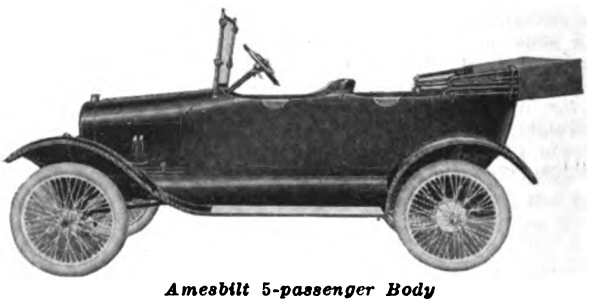
The standard finish is glossy black; other colors are extra. Price, $240.



Amesbilt 4-passenger Cloverleaf Clubster



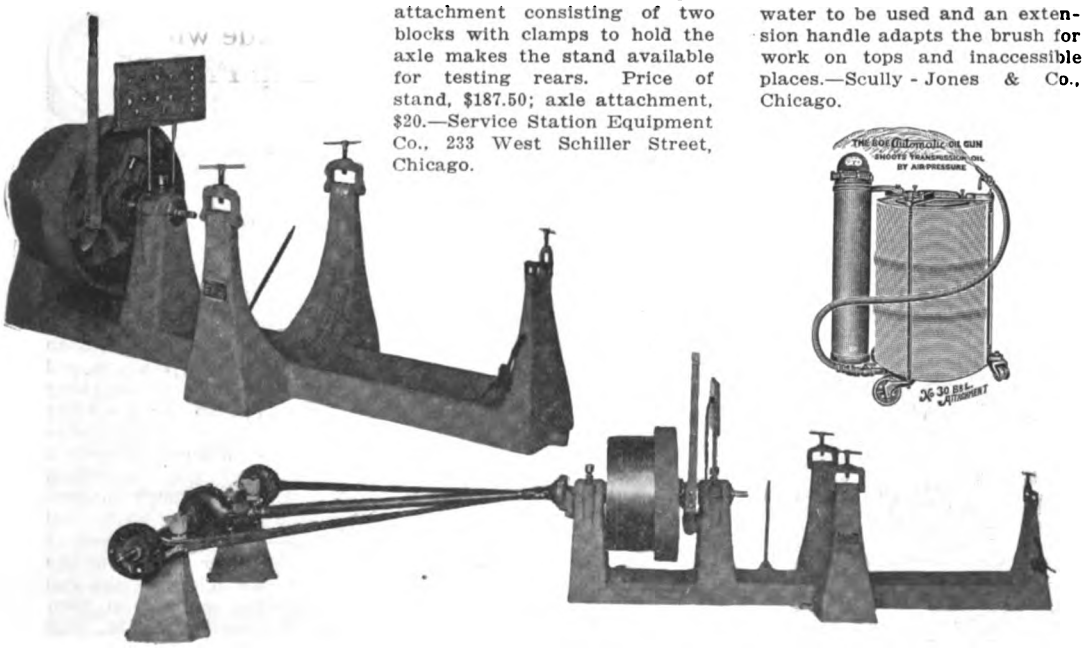
Amesbilt Speedster



Amesbilt 5-passenger Body

AMERICAN MOTOR TEST AND RUNNING-IN STAND

A stand for testing the Ford engine after overhauling and before placing in car. Friction clutch and pulley belted to line shaft permits engine to be driven till it limbers up, when the clutch is thrown out and engine runs under its own power. Three quick-acting clamps hold engine down and a regular Ford coil box is mounted on board. Coils and timer are connected up with wires which run through the base. A rear axle running-in attachment consisting of two blocks with clamps to hold the axle makes the stand available for testing rears. Price of stand, $187.50; axle attachment, $20.—Service Station Equipment Co., 233 West Schiller Street, Chicago.



WATER SPRAY WASHING BRUSH

A circular bristle brush with hose connection at the center through which the water is sprayed. An aluminum valve forms the handle of the brush and controls the flow of the water. An opening in the bristles allows a direct stream of water to be used and an extension handle adapts the brush for work on tops and inaccessible places.—Scully-Jones & Co., Chicago.



BOE AUTOMATIC OIL GUN WITH BARREL ATTACHMENT.

An automatic grease and oil gun which delivers grease or oil through a hose to the point desired by means of air pressure. A dial on the tank measures the amount delivered in either pints or pounds. The barrel attachment is provided with a truck on castors, and when the gun is empty it is refilled from the barrel by air pressure. Furnished complete with fittings either a 25- or 55-gal. barrel, $45.—H. M. Boe Co., 2416 University Avenue, Minneapolis.

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A TRIBUTE FROM CANADA

By J. Ernest Millen

AT the recent Hot Springs meeting of the National Association of Automobile Accessory Jobbers, J. Ernest Millen of Montreal did much to bind the hearts of America and Canada together when he presented a Canadian flag to the association. Only the words that Millen used could express the feeling he intended to convey, and the attention of the whole trade of Canada and "the States" is called to them. They follow:

YOUR Canadian associates count it a privilege to emphasize their union with you, not only in business relations but in those larger issues that pertain to the nationhood of free peoples. I do not believe that you fully realize the change that has come over the relationship between your country and our empire within the last twenty-five years.

I well remember the first few trade conferences I attended in this country and the thinly veiled feeling of animosity that was evident when Great Britain was discussed, but the Spanish-American war changed all that and you began to understand that Great Britain was your national friend and ally and that you together stood as the bulwark of true democracy. That feeling has been growing more cordial and intimate ever since, and was fostered by such far-seeing statesmen and patriots as Mr. Choate, Viscount Bryce and others, to whom both nations owe a great debt.

To-day we are "brothers in arms" and are so regarded by our foes. Thursday's "New York Times" in an article telling of the splendid deeds of your Sammies said that the Huns feared the Canadians most of all fighting men, and that they now recognized your boys were the same as ours.

In those terrible epoch-making days of the spring of 1915 when Canadians made historic the names of Ypres and Festubert I happened to be in Detroit when the grim details of those awful struggles came in, and it brought the lump into my throat to read those words of praise in the "Detroit Free Press," where they referred to the Canadians as "Our Boys," and a new feeling of kinship came into my heart and it seemed perfectly right that you should call them "Your Boys," not because hundreds, perhaps thousands, of your own boys had enlisted as Canadians from the "Provinces of Virginia, Alabama or Massachusetts," but because you were one with us in heart even then, though you did not all know it.

Saturday's news showed us your marines are living up to their motto: "We fight first." It does our hearts good to know that you are with us heart and soul, and that instead of 500,000 men from this side of the ocean five million men or more if needed will fight the battle for freedom and righteousness.

In a letter I received a week or so ago from my boy "Over There" he says: "I think we ought to make the grade within a year or so at most and wallop Fritz. I have been telling you that for the last three years, haven't I? I am bound to be right some time, though."

God grant that we may, gentlemen, with your help, whether it takes one year or five. And the ties thus sealed in blood shall never be parted.

Gentlemen, on behalf of the Canadian Auxiliary I have much pleasure in presenting the association with this Canadian ensign as a token of our comradeship in arms and our joint high purpose to **WIN THE WAR.**

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Wartime Conservation

Teaching the Car Owner to Help Himself

BRISCOE *SERVICE*

WE have been advised of your purchase of a Briscoe and we are sincerely glad to welcome you into the Briscoe family.

Your "good will" was a part of the purchase price of your Briscoe, and while that part has not yet been paid, you can do so by a boost to your friends; we shall do our best to warrant your good will—and your "boost."

If you did not receive an instruction book in your tool box, kindly write us at once. Remember that an oil can, a monkey wrench and a screwdriver, if properly used, will keep your car out of the repair shop.

If, at any time, there is anything you do not understand about the car, kindly write our service department.
With best wishes, we remain,

THE SERLIS MOTOR COMPANY
SERVICE DEPARTMENT
1602 Grand Ave. Kansas City, Mo.

NO. 1

BRISCOE
SERVICE Card
NO. 3
IMPORTANT!!! Read Carefully.

WHEN the National Automobile Dealers' Association recommended that dealers cut their service expenses by teaching car owners how to do more in taking care of their own cars, the Serlis Motor Co., Kansas City, put the plan into operation by sending out this series of five educational cards and will follow them with other instructions. Attention paid to these cards by owners will save the dealer many an hour of petty service. The cards are 3⅝ x 6¼ in., and all of different colors. The front of the cards, carrying the address and stamp, is shown at the top center of the page, labeled No. 3.

BRISCOE *Service*

HAVE you put water in your storage battery? It must be either distilled or clear rainwater. *Read your instruction book immediately about this;* otherwise, your batteries may run down, making your motor hard to start, ignition bad, etc. Water in a storage battery is just as essential as in the radiator.

Go over your ignition wires and connections occasionally to see that all connections are tight. Especially, see that ground wires and the terminals on the storage battery are tight; if loose, you will have difficulty or cannot run the car at all. The spiral shaft on the starter should be kept lubricated so the starting pinion will engage easily.

IGNITION SWITCH—Always shut your ignition off when stopping; don't depend upon the automatic throwout—it is for emergency purposes only, in case you do forget.

Read and follow your instruction book; it will add 100% to the life of your car!

THE SERLIS MOTOR COMPANY
SERVICE DEPARTMENT
1602 Grand Ave. Kansas City, Mo

NO. 3

BRISCOE *SERVICE*

ARE you carefully oiling your car? Wherever there is friction, there must be lubrication to prevent wear. Remember, parts in an automobile move with great speed, and lack of lubrication will cause rapid wear and this will result in looseness.

Read your oiling chart in the instruction book today and follow it religiously.

TIRES—Buy a tire pressure gauge and keep your tires inflated to 70 lbs. pressure. It will add wonderfully to your tire mileage; also, tire companies will not guarantee their tires unless kept at 70 lbs. pressure in 3½" tires.

Read and follow your instruction book; it will add 100% to the life of your car!

THE SERLIS MOTOR COMPANY
SERVICE DEPARTMENT
1602 Grand Ave. Kansas City, Mo.

NO. 2

READ carefully your instruction book about proper care of your clutch—very important.

This will be the last of our little reminders. We have endeavored to help in making your ownership of a car pleasant — and to merit your "good will."

We would appreciate, in return, your writing us on space below, just how you like your Briscoe, and if you have any friends you would like to see Briscoe owners, we would appreciate your telling us that, too.

We shall welcome your writing us at any time we can serve you.

Don't lay this letter aside—show us we have your good will and appreciation by writing us at once.

THE SERLIS MOTOR COMPANY
SERVICE DEPARTMENT
1602 Grand Ave. Kansas City, Mo.

NO. 5

BRISCOE *SERVICE*

HAVE you gone over your car to tighten all bolts and nuts? If not, put this card in your pocket as a reminder to do so at once. With your car tight and well lubricated, you will get real joy out of your car and also add 100% to its life. Look up the chart in your instruction book today and follow the instructions.

Keep the spring clips extra tight; if spring clips are allowed to become loose, the springs will break; if tight, you will have no trouble.

Read your instruction book now as to the adjustment of front wheel bearings and see if they need adjustment at this time. Also remove hub cap from rear wheel and tighten nut as much as possible to force wheel firmly on axle shaft.

Force 5 grease cups full of grease into the Hyatt bearings on rear wheels —this is very important.

Read and follow your instruction book; it will add 100% to the life of your car!

THE SERLIS MOTOR COMPANY
SERVICE DEPARTMENT
1602 Grand Ave. Kansas City, Mo.

NO. 4

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S. A. E. Meeting Great Rumor Killer

(*Continued from page* 16)

French 75-mm. guns or other field pieces, and crush down trees 7-in. in diameter, go over fences, ride over fence posts and cross ditches. It was an eye-opener to all notwithstanding familiarity with these tests through movie reels. It was the real war stuff with all parts camouflaged as if in action.

In addition there was the class B war truck, the new four-wheel-drive truck known as the Militor, and numerous other war trucks equipped as machine shops, etc.

In the same field were half a dozen farm tractors that gave constant performances, the list including the new Case, Fordson, Parrett, new four-cylinder Moline, Cleveland and others. Many engineers had never seen these machines plowing before.

Overhead Curtiss JN-4 training planes were constantly soaring, and for the special edification of the meeting ten to a dozen planes flew over and back in battle formation. A few minutes later, when these were out of the way, a group of battleplanes gave an exhibition of flying.

When Substitution is Good

One of our engineering accomplishments of the past year is exemplified in the work of substitution of new materials for older ones, of which we have a meagre supply. Due to the Irish situation we had not enough linen for the planes, but we have developed a brand of Sea Island cotton which is now serving as well as linen and we have it in great quantities.

When the shortage of spruce came up we turned our attention to Douglas fir, and to-day it is as good as spruce and our necessary supply is assured. We have fortified ourselves with a supply of castor oil by planting the beans. We have developed the manufacture of our dope and other chemicals, and if we have to use metal for parts we are ready to use it satisfactorily.

The meeting was a war contrast with that of a year ago held at the Bureau of Standards in Washington. Then we consulted on what to do. We looked for avenues of war activity:

To-day we examined the war products that the automotive industry has given the nation in the last year. Hundreds saw these for the first time and the examining of them served as an engineering stimulant that will result in greater production of American design.

President Kettering declares that every engineer must study aviation, must dream it, and think it in order that American brains may evolve something new that will place us ahead of the Hun in the air.

Director Stratton complimented the automotive industries when he said that no other industry was so well fitted to take up aviation work and that those who had the work in charge a year ago went to the proper industries to get the work done.

In addition to the foreign and American airplanes Triangle Park was given a very war-like appearance by the exhibit of the Ordnance Department. This included practically a complete line of the vehicles furnished by the department to the United States Army. These were put through a series of performances paralleling what would be met under difficult war conditions, and the engineers were greatly impressed by the spectacle of heavy creeper types of tractors pulling guns and limbers through a small jungle and over steep, slippery grassy slopes. The tractors brushed aside the saplings some 5 in. in diameter, pulling their guns over them as if they were nothing but reeds.

Army Tractors on View

On exhibition were tractors of 2½, 3, 5 and 10 tons capacity, an artillery repair truck, equipment repair truck, light repair truck, reconnaissance and machine gun car, self-observation car, a 3-in. gun trailer and a 10-ton trailer. These were all camouflaged and in their war paint gave a very business-like appearance to the exhibit.

The tractors performed in a manner which showed the immense mobility of the motorized field artillery. A small forest at the end of the field in which the undergrowth was so thick that a tractor and gun were swallowed up and out of sight after they had traveled 15 ft. offered no difficulties whatever. The tractors pushed the trees down in front of them, first bending them over and then crawling directly over, leaving them crushed to earth behind.

An exhibition furnished by the Signal Corps gave a further touch of war to the meeting. In this a fuselage of a plane containing a Liberty engine was set up on the field and the propeller mounted in place. A machine gun synchronized to fire through the blades of the propeller was fired to exhibit to the members the method of timing the machine gun fire.

The 3-ton tractor is a new machine of the four-wheel-drive type just developed by the Ordnance Department to meet the demands of the field artillery in France for a tractor capable of moving guns long distances at a rapid pace. This will take care of transportation of this nature on good roads where the services of a track-laying type are not required. This uses a Wisconsin engine of the type used in many other departments so that the advantage of interchangeability is secured. The vehicle can be used as a four-wheel steer when acting as a tractor or two-wheel steer when acting as a truck by simply interchanging axles. This model has been adopted as the standard four-wheel-drive type of this capacity for the army.

The 2½, 5 and 10-ton tractors are the track-laying type. The lightest is designed to replace a six-horse team and is very fast. It is primarily intended for hauling wire-laying reels across the country at high speed, and it is believed that it will ultimately replace the horse as a means of transporting the 75 mm. field guns.

The 5-ton is intended for hauling guns of medium weight at speeds of 6 m.p.h., although in emergencies the tractor can make 10 or 12 m.p.h. The preliminary designs for this vehicle were only decided upon on Nov. 24 *and in 6 months a completed tractor was developed and exhibited.* These tractors are armored to withstand shrapnel and machine gun bullets. The 10-ton is similar to the 5-ton, but will take care of twice the load. All of these were made to go through performances which parallel actual working conditions.

Lastly came a demonstration of the firing of two machine guns synchronized with a Liberty engine in a De Haviland plane so that the shots passed between the propeller blades. This demonstration was accompanied by an explanation by President Charles F. Kettering.

These exhibits were in themselves worth many times over the cost of the trip to Dayton and the time expended. It enabled war apparatus to be seen in different factories. The exhibits were opened for one hour each morning and at noon and from four each afternoon until seven.

Exhibits Always Crowded

Every exhibit was filled at these hours and when the sessions were on and addresses being given the exhibits were all closed.

It is not surprising that with such an exhibit of war production of the last year that every session should have been attended by 300 to 600 members who sat to the end and carried on spirited discussions.

With such a setting new ideas literally bubbled forth from the members and hundreds of new ideas on how well we are carrying out our war program were carried away. *Those doubting Thomases on the Liberty engine went away singing its praises. The engine itself and its parts carried conviction, and its performance in the air added the keystone of faith in it.*

One orthodox engineer, after studying the long line of ten engines for nearly an hour, expressed his faith in the Liberty engine in comparison with European types by declaring:

"I never thought the Liberty was so simple and such a good manufacturing job before."

It was the fact that his eye could travel from one to the other and back that led to that conclusion. That engineer is now a Liberty engine booster. The exhibit got a lesson under his skin that hours of discussion could not have injected. So it was with every other exhibit. The exhibits literally represented a new order of things.

It is not surprising that with such an

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atmosphere there should have been uttered by speakers at the Orville Wright dinner and at the other sessions so many expressions that deserve permanent places in automotive engineering history.

President Kettering, a past master in epigrammatic art, was the vivacious leader; in fact, he was literally effervescing all the time. He wound up the meeting with a sermon on farm tractors by declaring that we are in the ox-cart stage of the automotive industries, and that we must build better tractors for the farmers and stop over-selling them. Tractor success is one-half engineering and one-half psychological. We should paint our instruction books on and chain our tools to the tractor.

Our program of the last year in aviation came in for a tidal wave of praise. Howard E. Coffin, recent head of the Aircraft Production Board, attended most of the sessions and was the star speaker at the Orville Wright dinner. He is as firm a believer as ever in what has been accomplished in the past year, and told how our training *aviators are to-day averaging* 220,000 *miles of flying per day, which nearly equals nine trips around the world each day.*

In 3 *months we will be producing in a dozen plants nearly* 100 *Liberty engines per day, and yet in England they are only producing* 50 *per week of a well-known engine that we have been criticized for not manufacturing. Had we taken up the manufacture of that engine last year when we started developing the Liberty we would not have been in production as we are to-day.*

European nations gave us a year to get into aviation engine production, but we are into production in 8 *months.* The error we have made in our aviation program was that of too great optimism last summer, when we announced that we could do more than was humanly possible.

There have been seventeen different airplane investigations this year, and in every case excepting some in progress at present the investigators have given up in despair because of the magnitude of our aviation program.

Major Jesse G. Vincent told how fast the Liberty engine is by a comparison with an engine used in a motor truck, the same engine used in a light racing car and in a touring car, and Director Stratton of the Bureau of Standards gave his explanation of its speed by asking how fast is a locomotive and answered it by saying:

"That depends on the load it has to carry. If the Liberty engine is in a single-seated fighting plane it has very high speed. If in a two-man fighter it has a slower speed. If in a day bomber it is still slower and if in a night bombing plane that must cover long distances, carry heavy loads of bombs and remain in the air for many hours its speed may not be over 90 miles per hour."

F. G. Diffin, one of the delegates of the S. A. E. to the International Aircraft Conference in London last February, declared that as a nation we underestimate the fighting strength of Germany in the air, and that she is preparing to build in tens of thousands; that at present England and France have practically reached their limit of aircraft production and we must henceforth carry the burden.

President Kettering led the crusade and others joined him in a determination to push the propaganda of building those designs of planes, engines and other apparatus that we have ready rather than waiting until some super-type has been developed. Here he injected a quite familiar comparison with the annual model in the automobile industry.

No manufacturer refrained from building a 1917 model solely because he knew he could build a better model in 1918. Had that policy been followed we would not have 5,000,000 automobiles nor would we have the well-developed machines of to-day. So it must be with airplane engines, ordnance and other apparatus of war.

Coffin Tells of Airplane Accomplishments

Navy Flying Boats That Carry 13,000 lbs.

"IN all the talk of the airplane program," said Howard Coffin, former head of the Aircraft Production Board, "we have heard nothing of the navy, in spite of the fact that it has been doing remarkable work in the construction of flying boats and submarine hunters. The navy has built planes capable of carrying loads from 11,000 to 13,000 lb. and having engine power ranging from 400 to 1200 hp. The crews of these flying boats number five men and sometimes more.

"Commander Koven told me the other day of a trip to Newport News from Philadelphia with a flying boat equipped with two Liberty engines taken from stock. These engines did not miss a shot on the entire trip, which is quite a record for engines which are not supposed to run.

"Daily trips are being made by the navy flying boats from Newport News to Washington, and yet nothing is ever heard about it. When we hear the size of these planes and the amount of their power equipment we are prone to wonder what the limit will be. The army also has large planes, but the navy has been forced into this heavy construction because of the work which it has to do.



Howard Coffin

150,000 Men Now Training at 30 Stations

"All of you have seen to-day enough exhibitions of flying to know that we are on the right way in this country. Only a few weeks ago some of our friends in Washington were talking about the one airplane which cost the country six hundred and forty million dollars, and we are familiar with the cartoons in the funny papers showing the scales having the little airplane on one side and the large bag of money on the other. As a matter of fact only between one-third and one-half of that appropriation has been spent.

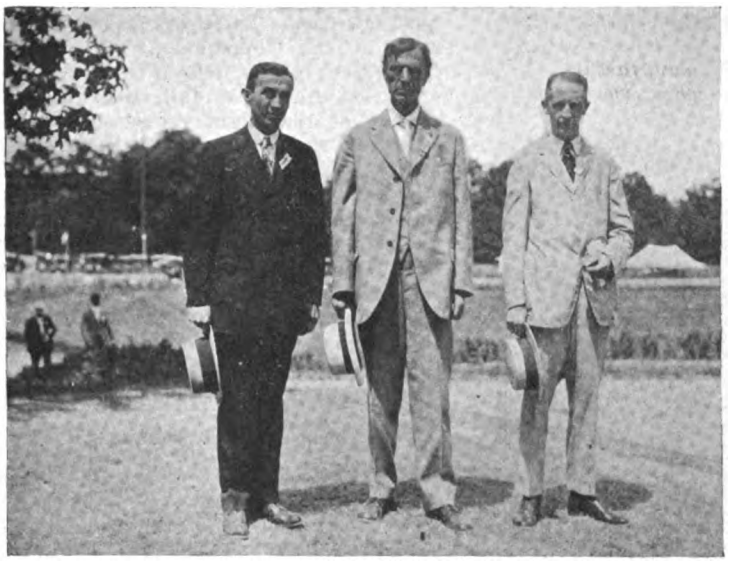
"There have been built over 6000 training planes. Two thousand others were scheduled to be built in Europe, but these have been partly held up due to the drive in Italy and the offensive on the western front.

"There are 150,000 men in training at the various airplane plants and flying fields.

"There are between twenty-five and thirty of these training stations.

"*Perhaps the greatest good which has come out of all the recent investigations is that the theory that it is impossible to produce standardized airplanes in quantities had been exploded.* Standardized designs are being produced now.

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G. M. Cameron, F. W. Gurney and G. T. R. Bell, of the Gurney Ball Bearing Co.



At the right and left are the Owen brothers, Ray M. and Ralph R.

Those who visit the Dayton Wright plant will see a fine example of this work.

"When the crates of planes are received on the other side it is not necessary to match up the different parts in the same way that they were put together in this country. The parts will go together because they are interchangeable, and it is recorded that in the space of two hours from the time of receipt a plane has been put together, the engine started and the plane flown.

This All Takes Time

"It has taken time to do all this and to get out the necessary tools, jigs and fixtures for the work. Those of you who have followed the work know what it means in the way of equipment and personnel to keep the planes in the air. You know what it means in the way of repair parts and fittings. You have also heard the foolish suggestion of bringing to this country an engine which has been tried out and found good in Europe, but you know that it is impossible to get into production on a foreign type of airplane engine in less than a year.

"Although the drawings, equipment, and even the engineers, are brought over from the other side, we have but to point to the example of the Gnome engine at the plant of the General Vehicle Co. and the Hispano-Suiza at the Wright-Martin plant or the Berliet at the plant of the American Locomotive Co.

"Those who have seen the exhibitions here and have been thoroughly conversant with the work know that American designs, American tools and American methods are far ahead of those over there when it comes to a production basis.

"The British, after three years and more of war, are only producing in the Rolls-Royce plant, where 10,000 men are employed, but fifty engines per week, and these have 50 hp. less and weigh 100 lb. more than the Liberty engines.

"So far as our purposes are concerned there are several plants in this country that will within the next 120 days be producing from fifty to 100 of these engines a day. Yet you cannot possibly convince a Senator of this.

"Navy boats have made flights frequently of ten hours continuously. Just figure out for yourself where ten hours will take them on the west front.

"The spruce production in this country has increased 750 per cent, and besides this there have been entire industries built up to take care of the requirements of accessories, such as wireless apparatus, delicate recording meters, bomb-dropping apparatus, flares, machine guns and many other things which were not produced here before.

Three Big Things Done

"These are more of a job than the plane and engine. Many of these things were not produced at all a year ago in this country.

Considering all things, there have been three big things done in the airplane industry in this country during the last year.

"1—*The production of the Liberty engine, including the Liberty cylinder, which should go through the war without a change in spite of other developments which may come up in engine practice.*

"2—*The discovery of a substitute for linen.*

"3—*The discovery that Douglas fir is a satisfactory wood for airplane construction.*

Read the Story on Page 12

"This had to be literally crammed down the throats of our Allies, but reports show that the wood is even superior to spruce and the supply is unlimited.

"It is unfortunate that the people cannot all know what is going on. From what we have seen in Dayton we know that we are going to show our friends on the other side that American industry is going to go a long way towards winning the war."

Trucks More Live Stock

KANSAS CITY, June 24—Live stock is the chief stimulant to truck use on country roads in Missouri. A recent tour of the northwestern part of the state, revealed the fact that live stock is being carried into nearly every town by truck, for shipment to stock yards. Stock raised within 25 miles of packing centers, is being taken direct to market by truck, in many cases.

The availability of trucks for carrying stock, especially hogs, to shipping points, is proving an important factor in the return of farmers to larger stock raising operations. The difficulty of making up a carload of stock at country stations, and the shrink and hazard of driving in hot weather, have been really serious drawbacks during the past two or three years of high values of farm products.

During the past few months many trucks have gone into service in northern Missouri for hauling live stock, and this development is in remarkable coincidence with the marktd tendency of northern Missouri farmers to raise more stock.

At Trenton, Missouri, for example, the local transfer company has recently installed truck service, and is building a good business with farmers hauling stock to town for shipment. Local transfer companies are doing this also at nearly all the larger towns. In the smaller communities, the truck that is doing live stock business is often owned by a farmer who makes good money from carrying the stock of his neighbors.

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Miss Elsa Feist in garb she has adopted for Fordson tractor demonstrations in the Northwest. She had never driven a car, but piloted a tractor at work for the two-day demonstration at St. Paul

Two-Day Demonstration Sells 750 Fordsons

And They Were all Cash Sales, Too —Schmelzel Has an Intensive Method

MINNEAPOLIS, June 24—Of the allotment to Minnesota of 1000 Fordson tractors 750 were sold in a 2-day demonstration on a 30-acre tract of land belonging to Thomas Frankson, Lieutenant-Governor. These were cash sales. Hundreds were attracted to the farm in St. Paul to watch the work of the tractors under supervision of W. H. Schmelzel of the Schmelzel Tractor Co. So successful was the exhibition that it has been decided to have a second demonstration near the State Fair Grounds through fair week, Sept. 2-7.

Schmelzel will base the allotment to the farmers of the state on small grain acreage, which makes one Fordson to 8135 acres. The allotment is by counties and the Ford dealers make the distribution without profit. Statistics were compiled for the allotment by A. D. Wilson, federal food administrator for the state. Under this acreage arrangement Polk County, for instance, is to get an allotment of 41 tractors, and Ramsey County, in which St. Paul is situated, will get one, and Hennepin County, with the other twin city, five Fordsons.

Miss Elsa Feist of McCarron Lake, sister of one of the Ford employees in the Schmelzel plant at St. Paul, with no previous experience plowed for the 2 days with a Fordson and made such a hit that she was retained to demonstrate the tractor and Oliver plows at Grand Forks, N. D., and Moorhead, Minn. The Lieutenant-Governor essayed a few furrows at the Fordson throttle. He will plant the land to flax and sell the product for the Red Cross fund.

Iron Ore Costs More Now

WASHINGTON, June 22—An increase of 45 cents a gross ton in the price of iron ore effective July 1 was agreed upon yesterday by the War Industries Board, the American Steel and Iron Institute Committee and members of the steel industry. Further very important announcements resulting from the meeting and affecting shipments of steel to non-war industries are expected within the next few days. There will be no changes made in the Government's schedule of fixed steel prices, which has been in operation since last fall, with the exception of the slight reductions of pig iron and scrap iron prices authorized March 26 last. Steel prices, which will stand unless the President fails to put the agreement in operation by proclamation, are those made effective last fall, beginning with prices fixed for iron ore, coke, pig iron, etc., on Sept. 22, and extending over a period to Nov. 5, when the prices of pipe, cold-rolled steel, scrap, wire and tin plate were promulgated.

Business Tour in Kansas City

KANSAS CITY, June 20—The Young Men's Division of the Chamber of Commerce of Kansas City has adopted the method employed during past years by the Kansas City Motor Car Dealers' Association of staging tours through the territory for the purpose of stimulating business and interest in good roads. The tours last about three days and radiate in all directions from the city. One of the propagandas is that in favor of the return loads bureau.

Tires Coming From Texas

HOUSTON, TEXAS, June 24—The Universal Tire & Rubber Co. which recently acquired a site of 30 acres is having plans made for the buildings of its proposed manufacturing plant that it will soon begin constructing. It is stated that it will manufacture automobile tires and tubes and that it plans to make a specialty of export business. The initial unit of the plant will give employment to about 500 men and this will be increased to 1500 within a short time. The company is composed largely of Texas men. Several cities and towns of the State entered into strong competition to secure the new industry, but the selection of Houston was made because of its shipping, both water and rail, advantages.



Headquarters of Schmelzel Tractor Co., St. Paul, which will distribute Fordson tractors in Minnesota through Ford agents, distribution being based on acreage of small grains

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Milwaukee Advertises War Service Program

Dealers Put It Up to Car Owners to Conserve Time and Labor at Service Stations

MILWAUKEE, June 24—Under the title "A Patriotic and Open Letter to Motor Car Owners of Milwaukee County," the Milwaukee Automobile Dealers' Association published a large display advertisement in the Milwaukee Sunday newspapers to announce the new rules and regulations for war conservation, at the same time making mention of the four emergency service stations already appointed for the purpose of rendering all-night, Sunday and holiday service to motorists in distress. The advertisement is signed, "War Service Committee, National Automobile Dealers' Association," and a further official touch is given by the statement that the conservation requirements are made effective by the Government, as set forth in recommendations of the War Economy Board of the Council of National Defense. The advertisement already published and the explanation to be mailed to all owners are only part of the work being done by the Milwaukee association at its own expense to show the Government every co-operation possible.

Rochester Drive-Aways Increase

ROCHESTER, June 22—Harry P. Ruppert, manager of the automobile license bureau at Rochester, has for some time been taking advantage of the great number of drive-aways which are passing through the city to secure the transportation of his license plates from Buffalo to this city. Owing to traffic conditions it has been found impossible to get these boxes of plates accepted by either the railroads or express companies, so Ruppert has been doing the next best thing and bringing them in by motor cars.

The Automobile Club of Rochester has announced that the best route for distributors to follow from Buffalo to this city is as follows:

Rochester to Buffalo—From Buffalo to Snyder, turning to left at Williamsville onto Transit road, through Lockport, Wrights Corners, Ridgeway, Medina, Albion, Holley, turn to the left to Brockport, following the Ridge road through Clarkson and entering Rochester via Lake Avenue. This is known as the Ridge Road route and is longer than the other route but the roads are in better condition.

Filling Stations Demand Cash

MINNEAPOLIS, June 24—Conservation has reached into the filling station business and eight companies owning 84 stations in the Twin Cities have agreed to go on the cash basis July 1. Customers must pay cash or buy coupons at $10 a book. This action will release about 60 men for other work. It is estimated 14,000 customers are affected in the cities by this move as well as by the new conservation open hours of 8 a. m. to 8 p. m. every day except Sunday when 5 p. m. is the closing time.

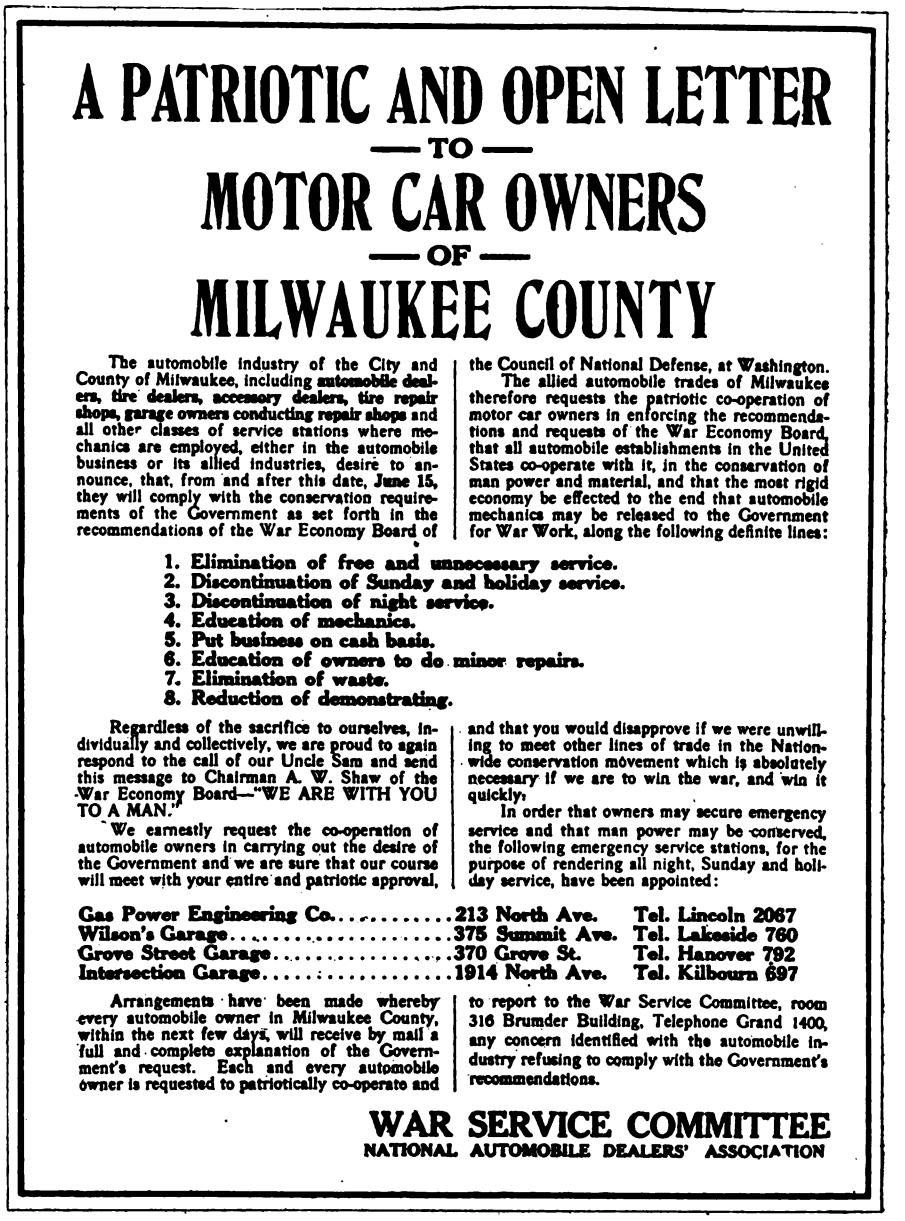
Wilmington Embargoes Cars

WILMINGTON, DEL., June 24—Because of the tremendous demand on railroad facilities entering Wilmington, due to munition and shipbuilding establishments, and other incidental war enterprises, railroad authorities have established a hard and fast freight embargo against passenger cars. As a result, cars that are not on the truck class that are shipped to Wilmington by freight are halted at the nearest outside delivery point, where they are unloaded and run into the city under their own power. Most of these cars are delivered at West Chester, Pa., which is 20 miles distant and where the freight congestion is about as near the minimum as can be found in this part of the country.

This condition of affairs has further stimulated the drive-away idea, as far as Wilmington is concerned, and the ranks are gaining recruits. Those driving in cars last week included the Penn-Del Motor Co. (Mitchell), Guy R. Ford (Overland), Taylor Motor Sales Co. (Haynes), Sweeten-Wilmington (Hupmobile and Franklin), Delaware Motor Sales Co. (Cadillac), Gomery-Schwartz Co. (Hudson), Cahill & Co. (Dodge), French Street Garage (Reo), F. B. Norman & Co. (Ford).

Knutson Heads Duluth

DULUTH, MINN., June 24—At the annual meeting of the Duluth Automobile Dealers' Association the following officers were elected: H. B. Knutson, president; Russel W. Sherman, vice-president; Mr. Foster, treasurer; Phil Holgate, secretary; Geo. Wilson, director.



A PATRIOTIC AND OPEN LETTER
— TO —
MOTOR CAR OWNERS
— OF —
MILWAUKEE COUNTY

The automobile industry of the City and County of Milwaukee, including automobile dealers, tire dealers, accessory dealers, tire repair shops, garage owners conducting repair shops and all other classes of service stations where mechanics are employed, either in the automobile business or its allied industries, desire to announce, that, from and after this date, June 15, they will comply with the conservation requirements of the Government as set forth in the recommendations of the War Economy Board of the Council of National Defense, at Washington.

The allied automobile trades of Milwaukee therefore requests the patriotic co-operation of motor car owners in enforcing the recommendations and requests of the War Economy Board, that all automobile establishments in the United States co-operate with it, in the conservation of man power and material, and that the most rigid economy be effected to the end that automobile mechanics may be released to the Government for War Work, along the following definite lines:

1. Elimination of free and unnecessary service.
2. Discontinuation of Sunday and holiday service.
3. Discontinuation of night service.
4. Education of mechanics.
5. Put business on cash basis.
6. Education of owners to do minor repairs.
7. Elimination of waste.
8. Reduction of demonstrating.

Regardless of the sacrifice to ourselves, individually and collectively, we are proud to again respond to the call of our Uncle Sam and send this message to Chairman A. W. Shaw of the War Economy Board—"WE ARE WITH YOU TO A MAN."

We earnestly request the co-operation of automobile owners in carrying out the desire of the Government and we are sure that our course will meet with your entire and patriotic approval, and that you would disapprove if we were unwilling to meet other lines of trade in the Nation-wide conservation movement which is absolutely necessary if we are to win the war, and win it quickly.

In order that owners may secure emergency service and that man power may be conserved, the following emergency service stations, for the purpose of rendering all night, Sunday and holiday service, have been appointed:

Gas Power Engineering Co.	213 North Ave.	Tel. Lincoln 2067
Wilson's Garage	375 Summit Ave.	Tel. Lakeside 760
Grove Street Garage	370 Grove St.	Tel. Hanover 792
Intersection Garage	1914 North Ave.	Tel. Kilbourn 697

Arrangements have been made whereby every automobile owner in Milwaukee County, within the next few days, will receive by mail a full and complete explanation of the Government's request. Each and every automobile owner is requested to patriotically co-operate and to report to the War Service Committee, room 316 Brumder Building, Telephone Grand 1400, any concern identified with the automobile industry refusing to comply with the Government's recommendations.

WAR SERVICE COMMITTEE
NATIONAL AUTOMOBILE DEALERS' ASSOCIATION

This is the quarter-page display advertisement which the Milwaukee Automobile Dealers, Inc., inserted to tell of the war service plan and get owners to do their share in the work of conservation

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Philadelphia Truck Dealers Hold Outing

Drop Business Cares for a Day and Play—High Speed at Mohican Club

PHILADELPHIA, PA., June 21—The fourth annual outing of the Motor Truck Association of Philadelphia held jointly with the Automobile Accessories Business Association and the Camden Automobile Trade Association at Kugler's on the Delaware River, was attended by about 300 members and their guests, and proved to be a real "get-together" event which brought the men from across the river into close touch and sympathy with the work and objects of the Philadelphians, aside from its social aspect.

While "shop talk" virtually was taboo, except in the set addresses, the gathering is regarded as having the effect of bringing the associations into closer contact in the matter of common interest. The fun started with the departure of the Philadelphians from their headquarters, at Broad and Callowhill Streets, in passenger cars—not trucks—for the Jersey side, at 1 p. m. At the Camden ferry the party was met by a delegation of the Jerseymen and given a warm welcome. The highest speed allowable for the Mohican Club was then maintained.

The guests of honor were Judge Eugene Bonniwell, of the Philadelphia Municipal Court, who is Democratic nominee for Governor of Pennsylvania; George M. Graham, chairman Motor Truck Highway Maintenance Committee of the National Defense Council, Washington; Emlen S. Hare, New York; Charles E. Grakelow and E. J. Cattell, City Statistician. All of these guests made speeches, patriotic in theme, and touching, from different angles, the rapid growth of the motor truck and allied trades in the last ten years, as well as the added impetus during the war.

As this meeting marked the last until the fall, the day was abandoned to enjoyment. Besides the "spellbinding" and the "well known and popular feed," there were field sports of various kinds. Owing to war conditions, the usual distribution of overalls for this part of the program was omitted, but the members had been warned not to wear anything that could be spoiled by rough usage. Old baseball uniforms and gymnasium costumes were the prevailing modes.

There was a potato race, a tug of war, a three-legged race, a fat man's race and the crowning feature—the baseball game between the Motor Truck Association and the Automobile Accessories Business Association, which was won by the former by the score of 17 to 10.

New Orders for Fordsons

DEARBORN, MICH., June 22—Henry Ford & Son has received more orders from states desiring tractors. A joint order has been placed for 1000 Fordsons to go to the States of Maryland and Delaware. Deliveries have not yet started on this order. New York has ordered 1000, of which 155 have been delivered. North and South Carolina have each placed orders for 100 tractors; these orders will be completed within 30 days. Only one distributer is provided for the entire New England sections; this is D. W. Flint, Providence, R. I., who has delivered 102 tractors and has orders for 200 more. One thousand will be delivered in this section. The Canadian delivery is now seventy-three tractors beyond its contract and Ford has orders for several more. It is believed the total will be 1129 before contract is closed. Of the 100 tractors ordered by Cuba thirteen have been delivered. Seven Fordsons have been shipped to South America. Deliveries to Ohio, Wisconsin, Iowa and Virginia are nearly completed. It is believed final shipments will be made about July 8.

Trucks Saving Wheat For Kansas Farmers

Requisitioned Machines Permit Its Removal from Badly Flooded Bottom Lands

KANSAS CITY, June 24—Trucks are saving wheat against possible destruction by floods, in bottom lands of Missouri and Kansas, this summer.

In many districts, floods in the past—often merely heavy rains that wash over the lowlands on which wheat is shocked or standing in sacks—have caused serious losses at this season. In many of these districts citizens are co-operating with farmers, to get the wheat moved as quickly after cutting as possible, to higher ground.

The hurry calls are sent into town, and all sorts of conveyances are offered for the purpose—and practically all the trucks of the communities.

Ossawatomie, Kansas, is one example of this practice. The wheat here had ripened on the lowlands quickly because of hot dry weather; it was an unusually large crop—and the local people were primed to give their utmost help in saving it.

W. H. Ellett, food administrator of Livingston County, Missouri, a banker, is making careful plans for moving wheat from lowlands of that district as soon as cut. He has already lined up several trucks which will follow the harvesters; and he is concentrating his cohorts of harvesters for tackling the bottom lands first. Every two or three years these bottoms are flooded, the damage frequently occurring just at harvest time.

Two Dealers Consolidate Service

WORCESTER, MASS., June 25—As a war conservation measure the establishments of the Henshaw Motor Co., Dodge distributer and the Packard Motor Car Co. of New England, will be consolidated in one building. The organizations will remain the same.

Philadelphia Truck Dealers Outing



This is the bunch of Philadelphia truck dealers who journeyed to Kugler's last week, the numbered ones being: 1—Lee J. Eastman. 2—W. H. Metcalf, secretary. 3—George M. Graham, chairman Motor Truck Committee, N. A. C. C. 4—J. D. Howley, President, Motor Truck Association of Philadelphia

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Chevrolet Wins Chicago Derby at 108 Miles an Hour

Mulford Is Second on Windy City Board Track—Vail in a Hudson Takes Third

CHICAGO, June 26—Louis Chevrolet captured premier honors in the fourth annual Chicago Automobile Derby today, when in a hotly contested race he won the 100-mile event, the feature of the day's program, at a speed of over 108 m.p.h. His Frontenac traveled the century in 55 min. 29.6 sec., an average of 108.1 m.p.h., breaking the previous Chicago 2-mile speedway record for the distance of 55 min. 50 sec. made by De Palma in a Peugeot 2 years ago.

Mulford in another Frontenac took second, finishing 1 min. 38 sec. behind Chevrolet, with Vail's Hudson third nearly a minute later.

The other five to register on the timer at the finish followed in the order named: Hickey in a Hudson, Oldfield in his Oldfield Special, Alley in the Bender, Milton in a Duesenberg and De Palma in his Packard.

The 100-mile event was preceded by a 10-mile handicap run in three heats, which turned up Resta as the winner, his time being 5 min. 33.1 sec. Chevrolet got second and Oldfield third in the final. The two preliminary heats went to Resta and Chevrolet.

Between the two events De Palma put his Packard around the 2-mile board track in a successful trial for the track record for one lap at a speed of 116 m.p.h., bettering the best previous record for the track set by Resta two years ago at 113 m.p.h. This record does not equal that of the Sheepshead Bay 2-mile speedway in New York.

With two track records to his credit the meet can be considered a success. Chevrolet's time for the hundred miles is not so good as the record he established at Sheepshead Bay last fall, so no new American records were made. But Chevrolet now holds not only the American record for the distance but the Chicago track mark as well.

To-day's race proved the possibility of getting out a big crowd even in these war times. But it was only done by adopting baseball tactics of popular prices and late starting. Prices were very much reduced from those of early races on this speedway—$1 admission, free parking spaces and $1 grandstand seats. Instead of the 2 o'clock start the starting bomb was fired at 4 p. m.

That these arrangements were wise was shown by the fact that fully 40,000 attended, a crowd exceeded only once at the speedway, and that the day the track was inaugurated 3 years ago. Over half the track was lined with double rows of cars in the infield, the biggest turnout of cars ever seen at one time in Chicago.

It is doubtful if another such crowd could be gotten out for another handicap 100 mile race, for with fifteen contestants it is hard enough for the grandstands to follow the fortunes of the individual drivers without, as in this case, starting them out at different times. With the scoreboards two laps or more behind, as is inevitable on a 2-mile speedway, the difficulties of keeping track of the contestants are increased and the interest is lost. Before De Palma, the scratch man, started, the slower cars had made a lap, and so from the start cars were strung around the entire 2-mile circuit and the spectacle of a flying start was lost, as was the struggle for early leadership among the fast cars.

Times for 100-Mile Race

Handicap Seconds	Driver	Time	M.P.H.
15	Chevrolet	55:29.6	108.12
20	Mulford	57:07.2	105.04
75	Vail	58:14.0	103.03
70	Hickey	58:37.0	102.36
40	Oldfield	58:55.0	101.87
50	Milton	59:35.0	100.69
22	Alley	59:36.0	100.67
00	De Palma	.....	.....

Excellent Management

The timing and management of the race as a wholle seemed to be excellent. The scoreboards were behind and inaccurate as usual and the announcing was much too infrequent and sparse in information. Aside from this, the card was run off in fine shape.

De Palma played in hard luck. The favorite of the grandstands and scratch man in the handicapping started fifteenth; therefore the Italian had his Packard by the end of 14 miles up into sixth place and was making the best speed. Then his jinx got him and he spent nearly 4 min. at the pits changing spark plugs. When he got under way he reeled off the laps at 109 and 110 m.p.h. But the others had gained too much and toward the last his speed seemed to tell, for Chevrolet and Mulford during the last quarter maintained their distance.

Resta lost to-day his distinction of never having lost a race on the Chicago track. He was given 30 sec. start over De Palma and was climbing into the lead when after the first 30 miles he stopped to change plugs. Later he made a second stop with a broken accelerator spring, and a third and final when he withdrew with oiling trouble.

The specially imported Duray, holder of the world's straightaway record, also ran, but not well enough to show. He was never a factor.

Twelve pit stops were recorded, and of these six were due to fouled plugs. De Palma made his first stop early in the race and required 3 min. 10 sec. to replace fouled plugs. Before this, McCarthy, driving the Hoskins, was declared out, due to faulty plugs. Percy Ford, in the Duesenberg, drove up to his pit after a few laps, to make minor adjustments, and shortly after him came Milton to change a right rear shoe. His was the first case of tire trouble.

The next man to come to the pits was Duray, who evidently did not understand all the subtle qualities of the Frontenac. His trouble consisted chiefly of over-oiling and sooted plugs, although he did some experimenting with the carbureter while at the pits and from this time on seemed to be running better.

Three minutes after he got away, Resta came to his pit and changed plugs. He stopped 10 min., and this put him out of the running, although his car was going strong. On the next lap he again halted at the pits; this time to put in a new throttle spring, the other having broken and prevented the throttle from closing on the turns.

The eighth man to turn in was Ford, with a blown left tire. One minute after him came Milton, who changed a right rear shoe, the same as he did before. A noticeable factor in the 100-mile race was the slowness of the pit work; tires were not changed as rapidly as in some of the other Chicago races.

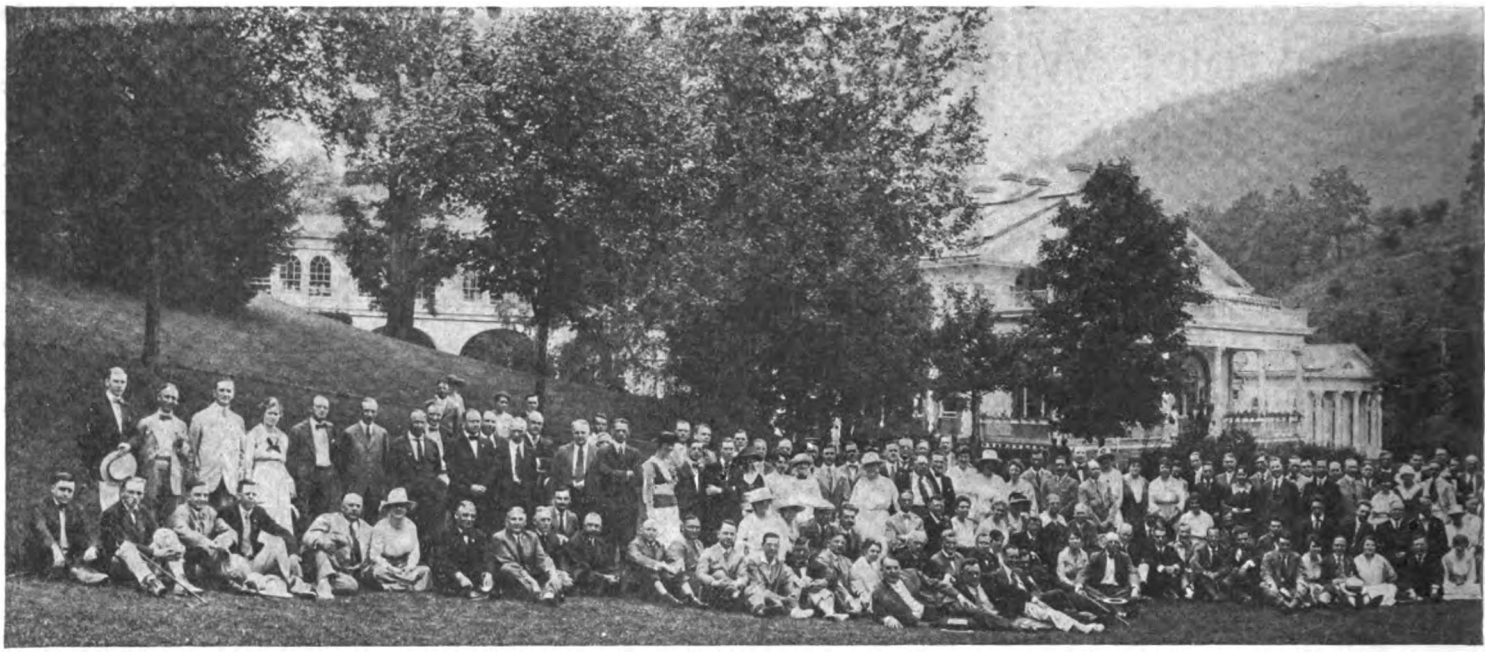
When the race was about half run Resta again brought his car to the pits, this time for good. He was troubled with fouled plugs, and his oil pump plunger, operated by the mechanic, was put out of commission.

About this time Alley, who had been going great guns, drew up for a tire, and this forced him to finish sixth, whereas he would have been among the leaders had he kept going. Omar Toft, in the Miller Special, had his trouble keeping oil from fouling plugs and was finally forced to the pits, to remain there while the leaders fought on.

All told there were but four tires replaced; quite remarkable when considering that the track was cut up and splintery. Only two of the four tires were actually cut to pieces, the others being changed by the drivers only as a matter of precaution. De Palma, after breaking the track record, changed all tires on his mount.

Resta's tires were specials, being intended for speedway and beach work. His car appears light and thus probably is very easy on tires. Practically all the drivers used Goodyear cord tires, excepting Oldfield, who had Firestones. The latter were also on Fetterman's Peerless. All cars had Rudge-Whitworth wire wheels and Hartford shock absorbers. Chevrolet used the new Benford spark plugs.

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Even though Motor World printed a lot of pictures last week of the people at the Hot Springs meeting that didn't get in. It is the group picture taken on the lawn with the bath house in the background. If

M. A. M. A. Lifts Ban from Jobber Exhibit

Rules That Members May Enter Trade Exhibition Without Suffering Outlaw Penalty

NEW YORK, June 24—The accessory—or rather "automotive equipment"—atmosphere has been considerably clarified and there is joy in trade circles generally through the lifting of the ban of the Motor and Accessory Manufacturers' Association on the fall exhibit to be held by the National Association of Automobile Accessory Jobbers.

The M. A. M. A. recently declared that it would not sanction the jobbers' exhibit and ruled that any M. A. M. A. member exhibiting would be barred from showing at the New York and Chicago shows. But at Friday's meeting of the M. A. M. A. executive committee this action was rescinded.

There appeared before the committee a committee representing two or three dozen manufacturers who belong to both associations. These members stated that the jobbers' exhibit will not be a show, will not be open to the public, no admission will be charged, and the exhibit will not be operated for profit. The M. A. M. A. executive committee then ruled that the exhibit did not fall within its jurisdiction and took the action which makes it possible for those belonging to both associations to enter the jobbers' exhibit without incurring the displeasure of the M. A. M. A. This action has removed a serious sore spot.

The M. A. M. A. show committee was instructed to take up with Manager Samuel A. Miles the matter of participation in the 1919 New York and Chicago shows as usual.

The following members were admitted: Buffalo Pressed Steel Co., Buffalo, N. Y., automobile silencers and stampings; Staybestos Mfg. Co., Philadelphia, brake linings for cars and industrial machinery; Hartford Auto Parts Co., Hartford, Conn., universal joints and cone clutches; Automobile Screw Products Co., Cleveland, automobile screws; Crucible Steel Co. of America, Pittsburgh, crucible and open hearth steel; Armstrong Cork Co., Lancaster, Pa., linoleum and cork specialties.

A resolution was voted thanking Christian Girl for his patriotic and energetic work in the Government service at Washington.

Des Moines to Conserve

DES MOINES, June 24—Des Moines motor car dealers, garagemen and repairmen are preparing to meet to the fullest extent the Government's request for conservation of materials, time and labor. The entire program proposed here has not yet been completed, but the Motor Trades Bureau of the Chamber of Commerce, which is composed of all branches of the motor industries here, has held several conferences this week to work out the details. All houses will be closed daily at 6 o'clock and not opened Sundays except for storage. All minor repair work which can be done by owners will be refused. A cash basis for all repair work, parts and supplies, including tires, tubes, gasolene and oils, will be put into effect at once.

More Room for Waukesha

MILWAUKEE, June 24—The Waukesha Motor Co. is completing erection work on three shop additions, which will be ready for service early in July and provide about 30,000 sq. ft. of floorspace additional.

Car and Truck Saving Wheat Crop of Kansas

Motor Vehicles Are Transporting Workers and Crops and Getting Product Out with Small Delay

KANSAS CITY, June 24—The automobile and the truck are actually saving the wheat crops of Missouri and Kansas, for without the facilities for quick transportation of workers thousands of acres would be seriously delayed in gathering, and perhaps not be gathered at all.

Mention has already been made of the plans for sending city folk into the fields after working hours to help out the farmers. These plans are working out even better than had been expected.

At Lee's Summit, for instance, 28 miles from Kansas City, an unusually large increase in wheat acreage, and the sharp shortage of labor, had put farmers up against it. Wheat cutting began June 18.

Every evening from 50 to 300 men from Lee's Summit start out in automobiles and interurban buses, passage free, and swoop down on the farms, where wheat has been cut during the day, and shock it. A man can shock an acre an hour easily—if he knows how. Green hands work more slowly; but they can do the work.

The parties leave Lee's Summit at 7:30 p. m.; go there to ten miles, work two hours and get home shortly after 10 o'clock. They accept no money for this service—but it is work that the farmers have been dreading ever since planting. There is sufficient labor for cutting and threshing. The parties can frequently handle the shocking of wheat on half a dozen farms in an evening.

Similar free service is being performed throughout Kansas and Missouri.

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of the National Association of Automobile Accessory Jobbers it didn't print them all. Here's one your picture wasn't in last week you probably thought that it wouldn't be printed, but here it is

Kansas City Active in Work of N.A.D.A.

Adopts Conservation Program and Expects to Get 2000 Members in City's Distributing Territory

KANSAS CITY, June 24—The Kansas City Motor Car Dealers' Association at a meeting June 19 again adopted in full the conservation program proposed by the National Auto Dealers' Association. The second endorsement was for the purpose of getting a larger number on record, and of making it very plain to the entire industry in Kansas City that this city is "going the limit" on the program. There was not a dissenting voice in the "discussion" of the subject—the only comments were rather jubilant exclamations that certain evils were at last to be eliminated—and that the motor car dealer was at last to have an occasional holiday. The association definitely designated the five important holidays, on which service shops and retail stores would be closed, in addition to Sundays: Jan. 1, May 30, July 4, Thanksgiving and Christmas.

"Kansas City is going to set an example to the entire Southwest in the observance of this program," said E. E. Peake, secretary of the association, addressing the members in a summing up of the comments, and expressing pleasure at the unanimity of sentiment.

Plans are being made for securing the co-operation and similar uniformity of action from all garagemen and every institution connected with the industry in Kansas City.

Kansas City is making a strong start on the membership campaign, which is a feature of the program of the national association. The local association has amended its by-laws to admit associate members, without vote, at a comparatively nominal fee. These associate members are retail dealers without territory for distribution. Practically every Ford dealer in Greater Kansas City is now in the association—and they are "strong for" every one of the projects that has yet been proposed. R. P. Rice, manager of the Kansas City Ford branch, is chairman of the committee appointed to build up the membership of the national association in Kansas City territory—and he announced that he expected to see 2000 of the possible 3000 dealers join. Letters are being sent to all dealers, by distributers, outlining the necessity for united action by dealers.

Change in Albee Personnell

DETROIT, June 24—R. C. Getsinger, formerly sales manager of the Saxon Motor Car Corp., Detroit, has been elected vice-president of the William N. Albee Co., Detroit. James Strasburg, formerly with the American Electrical Heater Co., The Saturday Night and the Strasburg-Miller Co., Detroit, has been appointed sales manager of the Albee company, which is engaged in sales promotion through advertising, especially in the automotive industries.

More Room For Packard

DETROIT, June 24—The Packard Motor Car Co. has leased the buildings formerly occupied by the National Body & Trimming Co., in the rear of the Packard factory, for a term of 3 years. The buildings have a frontage of 150 ft. on Mt. Elliott Avenue and depth of 400 ft., and contain a floor space aggregating 100,000 sq. ft. The Packard company will take possession in July, and plans to utilize the plant for general manufacturing and storage purposes. The National company has gone out of business.

Give Service Only for Cars They Sell

Labor So Short in Wilmington Some Dealers Are Restricting the Trade of Their Shops

WILMINGTON, DEL., June 24—The labor problem has become so acute in Wilmington that some of the motor establishments are confining their repairs and care of cars to the ones they especially represent. Labor and transportation are now the two big problems the local men have to deal with. While the latter has been largely overcome through the drive-away plan, the matter of help appears to be growing more serious.

The two principal reasons are the inroads made on the man power of the country by the war and the temptation in the matter of wages held out by other industries. In the local shipyards many unskilled men are receiving from $75 to $120 a week, while skilled help is paid in even larger proportion. Munition workers are also being well paid, and it is difficult for the motor establishments to compete. The patriotism of the men is holding many, however, with the belief that the inflated wages in the war work will not last forever and with the feeling that they are under some obligations to employers who have done well by them when there was not so much money in the other industries.

Spence Joins Sewell

INDIANAPOLIS, June 24—G. B. Spence, formerly retail sales manager for the Gibson Co., Indianapolis, Willys-Overland distributer, has been added to the staff of the Sewell Cushion Wheel Co., Detroit. He will have charge of all city sales east of Woodward Avenue.

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Prominent Tradesmen Assume New Duties

Resignations and Promotions Place Workers in New Places

H. J. St. Aubin, for several years traffic manager of the Federal Motor Truck Co., Detroit, has resigned to enter the service at Camp Custer, Mich.

Louis W. Cossey has been appointed sales representative for the Lane Motor Truck Co., Kalamazoo, Mich., for western Massachusetts and New York state.

W. I. Brown, formerly sales manager of the Scripps-Booth Corp., Detroit, has become eastern district sales manager for the Cleveland Tractor Co. with headquarters at the home offices, Cleveland.

G. M. Evans, formerly treasurer of the Menominee Motor Truck Co., Menominee, Mich., is now a captain in the ordnance department of the United States Government.

P. L. Barter, sales manager for the McCord Mfg. Co., Detroit, has been promoted to the position of second-vice-president. He has been with the McCord company since its inception nearly 10 years ago.

Ansel W. Mingo, traffic manager of the Walker-Weiss Axle Co., Flint, Mich., is dead.

Lawrence Hayes has been appointed general superintendent and assistant plant manager of the Pontiac plant of the Hess Spring & Axle Co., succeeding Frank Gimmelsman, who has been transferred to Cleveland to become plant manager. He was formerly factory superintendent of the Perfection Spring division of the Standard Parts Co., Cleveland.

J. H. Quinlan succeeds C. H. Gresslee as division sales manager of the Selden Truck Sales Co., Rochester, N. Y. Quinlan will make his headquarters at Cincinnati and will be in charge of the Selden business in southern Ohio, Indiana, Kentucky and West Virginia.

H. B. Cunningham, for several years connected with the S. R. Blocksom Motor Co., 661 North Broad Street, Philadelphia, has been elected general manager of the Automobile Co. of Philadelphia, 674 North Broad Street.

J. W. DeCou has been appointed factory manager of the Ross Gear & Tool Co., Lafayette, Ind. He was for 8 years factory manager for the Thomas B. Jeffery Co., Kenosha, and 2 years factory manager for the Smith Form-A-Truck Co., Chicago.

C. W. Waughop, formerly eastern district manager of the Rainier Motor Corp., New York City, has joined the wholesale forces of the Hurlburt Motor Truck Co. of the same city, to cover Pennsylvania and Ohio territory.

Charles E. Wells has been appointed manager of the Philadelphia branch of the Oakland Motor Car Co., Pontiac. He has been assistant branch manager of the Oakland Omaha branch for the past year, previous to which time he was a branch manager for the John Deere Plow Co.

T. E. A. Barthel, formerly general manager of the King Motor Car Co., Detroit, has become associated with the Curtiss Aeroplane & Motor Corp., Buffalo, and his duties will have to do with the finances of the corporation.

C. E. Havens has been appointed service manager of the King Motor Car Co., Detroit, succeeding George C. Gurney, who recently resigned to accept a similar position with the Scripps-Booth Corp., Detroit.

Albert Boasberg, who has been a member of the sales force of the United States Tire & Rubber Co.'s Rochester branch, has been promoted to a position in the New York office of the company. He has been connected with the company in Buffalo and Chicago.

W. Grampp of the Grampp Motor Sales Co., Davenport, Iowa, Paige dealer for this territory, has been drafted for national army service and is closing out his agency and will leave with the next call for drafted men.

W. T. Woodrow has been appointed general manager of the Manitowoc (Wis.) plant of the Aluminum Castings Co., with main offices in Cleveland, O., to succeed Howard Emery, who some time ago was promoted to the position of general manager of the plant at Detroit. **Charles H. Seegitz,** assistant manager at Manitowoc, has been transferred to the purchasing department at Cleveland and is succeeded by L. H. Gleason.

Glover Watson, former Michigan distributer for the Minute wheel, has been appointed Southern sales manager for the Kol-Ben Wheel Co., Detroit. George H. Buck has been made Eastern sales manager.

Charles R. Porter, one of the pioneer truck salesmen in St. Louis, has joined the White staff in that city.

Thomas W. Lloyd, recently manager of the Kansas City branch of the K. P. Piston Ring Co., has been named manager of the St. Louis branch of the Stewart-Warner Speedometer Corp., succeeding **J. C. Stone,** who resigned to become president of the Liberty Accessories Corp. of St. Louis.

Samuel Niederberg, recently president of the United Automobile Sales Agency, a used car sales firm in St. Louis, has been appointed sales manager for the Milburn electric cars by Marshall Bros. of St. Louis.

J. M. Nichols of the Nichols-Cox-Woodall Sales Co., Brunswick tire distributer in St. Louis, has enlisted in the navy after disposing of his interest in the firm to his partners.

David B. White, recently of the Woods Electric Vehicle Co., St. Louis, and one of the "old timers," has quit the motor cars to become an official of the Ballard Snow Liniment Co. of St. Louis.

Charles E. Wells, for the last year assistant manager of the Omaha, Neb., branch of the Oakland Motor Car Co. of Pontiac, Mich., has been appointed manager of the Philadelphia branch.

C. K. Whidden, for several years connected with the Philadelphia sales force of the United States Tire Co., has been appointed assistant manager of the motor truck tire department sales organization of the company, with headquarters in New York City.

E. B. Moon, who was formerly director of sales of a large wholesale house, has been appointed sales manager and advertising manager for the Columbus Tractor Co., Columbus, Ohio.

Price Changes Made By 10 Manufacturers

Chandler, Cole, Comet, Cunningham, Harroun, Kline, Liberty, Moon, Oldsmobile, Paterson Go Up

NEW YORK, June 24—The following changes in price have been made during the past week:

	New Price	Old Price
Chandler, 4-pass., 2 door	$1795	$1595
4-pass., 4 door	1875	1675
7-pass.	1795	1585
Coupe	2395	2195
Sedan	2495	2295
Limousine	3095	2895
Cole, 2-pass	2595	2395
4-pass.	2595	2395
7-pass.	2595	2395
Coupe	3795	2495
Sedan	3595	2795
Comet, 7-pass.	1685	1285
Cunningham, 142 in. wheelbase	6000	4750
Harroun, 5-pass.	995	895
Kline, 2-pass.	1595	1495
4-pass.	1595	1495
5-pass.	1595	1495
Liberty, 2-pass.	1485	1385
4-pass.	1485	1385
5-pass.	1485	1385
Moon, 6-36, 5-pass.	1395	1295
4-pass.	2250	1985
5-pass.	2250	1985
Oldsmobile, 37, 4-pass.	1295	1195
5-pass.	1295	1195
Paterson, 4-pass.	1495	1295
7-pass.	1495	1295

Motor Car Securities Quotations

	Bid	Asked
*Ajax Rubber Co.	57	60
*J. I. Case T. M. Co., pfd.	80	86
Chalmers Motor Co., com.	5	6
Chalmers Motor Co., pfd.	30	40
*Chandler Motor Co.	82	84
Chevrolet Motor Co.	129	132
Fisher Body Corp., com.	39	41
*Fisher Body Corp., pfd.	87	89
Fisk Rubber Co., com.	53	57
Fisk Rubber Co., 1st pfd.	98	102
Fisk Rubber Co., 2nd pfd.	77	84
Firestone Tire & Rub. Co., com.	89	91
Firestone Tire & Rub. Co., pfd.	93	95
*General Motors Co., com.	138	141
*General Motors Co., pfd.	81	82
*B. F. Goodrich Co., com.	45	45½
*B. F. Goodrich, pfd.	98	98¼
Goodyear Tire & Rub. Co., com.	150	160
Goodyear Tire & Rub. Co., pfd.	97	99
Grant Motor Car Corp.	2¾	3
Hupp Motor Car Corp., com.	2¾	3
Hupp Motor Car Corp., pfd.	79	85
International Motor Co., com.	30	35
International Motor Co., 1st pfd.	56	62
International Motor Co., 2nd pfd.	38	43
*Kelly-Springf'd Tire Co., com.	50	50½
*Kelly-Springf'd Tire Co., 1st pfd.	79½	87
*Lee Rubber & Tire Corp.	18½	19
*Maxwell Motor Co., Inc., com.	28	28¼
*Maxwell Motor Co., Inc., 1st pfd.	54	56
*Maxwell Motor Co., Inc., 2nd pfd.	19	21
Miller Rubber Co., com.	99	101
Miller Rubber Co., pfd.	90	92
Packard Motor Car Co., com.	109	116
Packard Motor Car Co., pfd.	93	96
Paige-Detroit Motor Car Co.	15	17
Peerless Truck & Motor Corp.	14	17
Portage Rubber Co., com.	100	102
Regal Motor Car Co., pfd.	..	..
†Reo Motor Car Co.	13	15
*Saxon Motor Car Corp.	8	9
Springfield Body Corp., com.	..	..
Springfield Body Corp., pfd.	..	..
Standard Motor Construction Co.	11¾	12¼
*Stewart-Warner Speed. Corp.	57½	58½
*Studebaker Corp., com.	45	45½
*Studebaker Corp., pfd.	85	90
Swinehart Tire & Rubber Co.	50	65
United Motors Corp.	29½	30½
*U. S. Rubber Co., com.	58¼	58¾
*U. S. Rubber Co., pfd.	103¼	103¾
*White Motor Co.	41½	42½
*Willys-Overland Co., com.	20⅝	20⅝
*Willys-Overland Co., pfd.	81½	83
Standard Parts Co.	60	62

*At close. Listed N. Y. Stock Exchange.
†Par value $10.

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Mexico Now Land of the Gasoline "Crock"

Cars of All Kinds and Descriptions Are Running in the Land of Revolutions and Cactus

MONTEREY, MEXICO, June 24—It may truly be said that Mexico is a land of used automobiles. While there have been importations of small lots of new cars from time to time during the last 8 years that unstable conditions have prevailed in this country, used cars have been brought in in large numbers, not only from the United States but from Central and South American countries. Besides these direct importations of used cars, there are still in every day use in the capital and the other principal cities of the country thousands of American, French and English models of many years ago.

In many instances these cars long since passed out of the hands of the original owners. Large numbers of them were left behind by wealthy citizens, when, for political reasons, they had to flee the country. They fell into the possession, by confiscatory methods, of army officers and public officials of the various successive revolutionary regimes through which the country has passed since the ousting of the late General Porfirio Diaz from the presidency. Most of the higher Government officials have succeeded in keeping themselves supplied with new automobiles from time to time, but for the most part old and badly wornout cars are still in use throughout the country.

The one exception to this condition is the thriving Gulf port of Tampico and the oil producing region adjacent thereto. The importation of new automobiles by American oil operators and other business men of Tampico has kept up right along. Some idea may be had of the practical uses to which automobiles are put in the Tampico region by the statement that one of the large American oil companies there is building a 65-mile automobile road to connect the field, where it is operating, with Tampico. It is expected that within the next few years a splendid system of highways will run all through the oil producing region. Tampico is well supplied with garages and automobile repair shops, and in these respects it is said to be ahead of any other city in Mexico.

St. Louis Has a Ladies' Night

ST. LOUIS, June 24—President John Shuford of the Motor Trade Accessory Association started his administration by getting everybody in a good humor. The first ladies' night was the occasion of the installation of officers for the year. Also a lady, Miss Alma Robb, salesmanager of the Woman's Department of the Missouri State Life Insurance Association, was a speaker. She spoke on the possibilities of a woman in business life, which, she predicted, the automobile industry soon would have to recognize.

Retiring President Marvin introduced the new officers, but they did not talk business but promised a platform at the next meeting.

A message from Chief of Police Young was read in which he promised that his department would stop the boys from jumping on runningboards of machines at ball parks and other places of amusement and recreation. The association has been asking for this rule because the boys had become a nuisance and because of the danger to them.

New Lauson Tractor Distributer in Northwest

MILWAUKEE, June 24—The John Lauson Mfg. Co. of New Holstein, Wisconsin, has closed the Northwest territory with the Northwestern Lauson Tractor Co., Minneapolis, which will distribute in Minnesota, South Dakota and the northwestern part of Wisconsin. The personnel of the company will be F. L. Sturr, Rockwood W. Bullard and D. E. Ryan, who have been associated with the Ford business in Minneapolis. The headquarters of the company will be at 1208 Harmon Place, Minneapolis. The initial order was for over 200 tractors. A complete stock of tractors and repairs will be maintained so that prompt delivery and service will be assured.

X-Ray Trucks for the Army

WASHINGTON, June 20—One and one-half ton General Motors Co. trucks equipped with special bodies made by the H. M. Babcock Co. will be used by the Medical Department of the United States Army for mobile X-ray equipment. Each truck will carry a complete X-ray outfit with a specially designed collapsible X-ray table. A stationary gas engine is included in the equipment and generates the electrical power for the X-rays. The sides of the truck body can be converted into tables on which patients can be treated.

Philadelphia Sociability Run Shaping Up

PHILADELPHIA, June 23—An encouraging list of entries has been received for the Philadelphia Garage Association's Sociability Run to Atlantic City on June 25. An entrance fee of $5 will be charged and merchandise prizes will go to the contestants guessing the nearest running time set by the committee. Applications are being made to the association's president, George G. Blind, who is also chairman for the run, and John R. Fox, the association's secretary. The starting point will be at North Broad and Diamond Streets at 8:30 a. m., but in case of rain the run will be postponed until the following day at the same hour and place. The White Horse Pike will be the route to the shore. The checking-in station at Atlantic City will be at 1715 Pacific Avenue. The committee consists of George G. Blind, John R. Fox, Richard Lussee, L. F. Pfeifer and Michael Waugh.

Gas Enough for All If We Don't Waste

Government Says Stories of Shortage Are Buncombe and Advises Users to Go Carefully

WASHINGTON, June 24.—There will be sufficient gasoline for war, passenger cars and all ordinary purposes if rational conservation is practiced by the public. This is the substance of a statement issued to-day by the Fuel Administration as follows:

"Up to the present time there has been sufficient supply of gasoline to meet all requirements, but in order to be prepared for any shortage, should it arise, plans are being considered by the Oil Division of the Fuel Administration, in co-operation with the automobile industry and the National Petroleum War Service Committee, for the purpose of determining the most satisfactory method of gasoline conservation.

"It is not expected in any event that it will be necessary to restrict normal consumption for freight vehicles and, provided there is a reasonable conservation by all concerned, it may not be necessary to seriously interfere with pleasure cars and motor boats.

"It must be borne in mind, however, that the paramount use for gasoline is for war purposes, all of which requirements will be supplied. The volume of this will largely govern the situation.

"It seems possible that rational conservation by the public will render Government action unnecessary."

Garfield After Fuel Information

WASHINGTON, June 21—All industries or concerns using 500 tons of coal or more annually are urged by the United States Fuel Administration to promptly fill in the questionnaire which has been sent to them by Dr. Garfield's organization. The purpose of the questionnaire is to establish without dispute the industries entitled to places on the "Preference List." These industries will be served with coal in sufficient amounts to care for their current requirements before distribution is made to other consumers.

The preference list already established by the War Industries Board is being re-classified to maintain degrees of preference. The first degree of preference has already been determined, and includes railroad fuel, steamship bunkers, exclusive of pleaure crafts, and by-product plants. The second, third and fourth degrees of preference are for the present being considered as one group, and no differentiation will be made between them until the complete re-classification has been made.

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$500,000 Company for Inter-City Trucking

Beam-Fletcher in Philadelphia to Use 67 Trucks in Handling Short-Haul Freight

PHILADELPHIA, June 23—The Beam-Fletcher Corp. and the Union Transfer Co., the latter having strong railroad connections, have formed a $500,000 inter-city motor trucking company under the title of the Beam-Fletcher Transportation Co. and have just organized, electing the following officers and directors: President, Perry E. Beam, former president of the Beam-Fletcher Corporation; vice-president, E. C. B. Fletcher, and secretary and treasurer, Charles A. Bothell, former general manager of the Union Transfer Co. Directors: John Gribbel, president of the Griffin Mfg. Co.; John S. Jenks, Jr., banker; Gustavus B. Fletcher, vice-president Mitchell, Fletcher Co.; Charles A. Bothell, E. C. B. Fletcher and Perry E. Beam.

The fleet now owned and ordered consists of 67 trucks, twenty being used in long-haul traffic only, the vans being locked by a special process on leaving a terminal, there being no mode of unlocking them until they reach the delivery point. The rest of the trucks are used in local delivery to and from freight stations.

At present the company is handling an average of 200 tons of freight daily, or the capacity of 10 to 14 standard size railroad cars. Lines already are in operation between Philadelphia and New York, Baltimore, Reading, Easton, Allentown and Bethlehem and extensions to Harrisburg and Lancaster are about to be made, while it is expected to have a daily service to Trenton via Bristol and to Chester, Marcus Hook and Wilmington and an express service in conjunction with the Union Transfer Co. by July 15 to Atlantic City.

The Union Transfer Co., which has on its official personnel some of the most prominent business men in Philadelphia, including Agnew T. Dice and E. T. Stotesbury, has invested $150,000 of its surplus in the new enterprise. Shippers will be furnished with rate cards and the new schedule shows rates approximately the same as those of the express companies in nearly every instance.

Postpone Bloomington Show

BLOOMINGTON, ILL., June 24—The proposed outdoor show around the court house square here, arranged by the Bloomington Automobile Trade Association, was indefinitely postponed, due to labor troubles. All of the clerks in the stores of the uptown district went out on a strike and the mechanics and helpers in the various garages followed their example. This city is to entertain the Illinois State Federation of Labor in annual convention this fall, and organizers from outside points have been here for some time in the effort to unionize every branch of labor in order that the labor leaders, when they arrive, could be given a demonstration by the membership, and also as an illustration of what could be accomplished by active effort.

So far, the efforts of the organizers have not met with much success. Not a single line of industry would agree to the closed shop, the principal contention of the organizers, nor would the proprietors make any other concession which would take the control of the business out of their hands and place it in those of the employees. As soon as the various trades arrange a settlement with their respective employees, the outdoor show will be given as originally arranged. All preparations had been made and the dates fixed for June 20, 21 and 22 when the walkout took place. Pending the settlement, all of the garages were closed.

Start New England Truck Mail

WASHINGTON, D. C., June 24—Daily automobile parcel post service between New York and Worcester, Mass., will be started on July 1. When a bad stretch of road between Waterbury and Hartford, Conn., has been put in shape, the route will be extended to Portland, Me. Repairs to this road are scheduled to be completed by July 15. Stops will be made at Danbury, Conn., and Springfield, Mass., and other points along the line. With the New York-Portland service started, parcel post trucks will be in operation in connecting links over a continuous route between Portland and Warrenton, Va. Truck service between New York and Washington already is in operation. Further extension southward will be made as soon as cars can be secured.

Mason to Make Truck Tires

KENT, OHIO, June 24—The Mason Tire & Rubber Co. will manufacture solid truck tires. This is a new departure for the company. All sizes of solid tires will be made from Giant tires for use on the largest and heaviest trucks down to small sizes for light delivery trucks. The line will be complete in every detail. The Mason company expects to be turning out the small size truck tires within the next three months, and all sizes will be manufactured by the fall.

It is possible, according to the plan of the company, to take care of the contemplated production of 1200 to 1500 pneumatic tires a day which the Mason factory will soon reach and also to turn out a large number of solid tires. It is expected that the new department will be turning out 100 solid tires per day by Jan. 1, 1919. Forty to fifty people will be employed in the solid tire department.

Lee Clough, a pioneer in solid tire construction, has been secured by the Mason company to take charge of the new solid tire department. Clough has resigned from the Firestone Tire & Rubber Co., Akron, and will assume his new duties at once.

British Government Gets 6000 Fordsons

Retail Price of $1250 Has Been Fixed—Ford Completes Order for British Government

LONDON, July 18—By Cable—The 6000 Fordson tractors ordered by the British Government from Henry Ford & Son, Dearborn, Mich., have all been delivered, and Henry Ford has now completed all his obligations with the British Government so far as the Fordson tractors are concerned.

Now that the Government order of Fordson has been completed, this tractor has been placed on retail sale at a purchase price of $1,250. No information is available as to the quantities in which these tractors will be available for private sales.

In order to carry out still further its program of standardization on tractors the Government has started the sale of all of its tractors except Fordson, two International Harvester models, namely, Mogul and Titan. This has been done to secure standardized working conditions and simplify to the greatest extent the distribution of spare parts, as well as the education of operators for tractors.

In recognition of what Percival Perry, head of the Ford interests in England, has done for the Government, he has been knighted and is now Sir Percival Perry. In addition to his tractor activities he is now director of the mechanical warfare department of the Government.

Central Ohio at Height of Drive-Away Season

COLUMBUS, OHIO, June 24—This is the height of the drive-away season in Columbus and in fact all central Ohio points. Scores of cars are being driven to Columbus from the factories in Detroit, Flint and Toledo and in addition scores of other cars are coming through Columbus destined for points south and east of the Buckeye Capital. It is no unusual sight for a train of new cars numbering from 10 to 25 to be seen passing along the roads leading to the larger distributing centers. Practically all of the cars now sold in Columbus are received through the drive-away plan. This includes Overlands, Buicks, Hudsons, Chevrolets, Whites, Reos, Packards and in fact all of the makes.

Pratt Heads Higrade Motors

HARBOR SPRINGS, MICH., June 24—The following officers were elected at a recent meeting of the board of directors of the Higrade Motors Co.: President, J. Elmer Pratt; vice-president, Frank Voorheis; secretary and treasurer, Lette Shay. L. W. Coppock, M.E., Grand Rapids, was appointed consulting engineer of the company, and Lette Shay was made superintendent of purchases and production. The general sales and advertising offices will remain at Buffalo.

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Salesmen Made to Your Order

(*Continued from page* 9)

thoroughly acquainted with his sales manager else he might have stayed, because Caswell caught a freight train from Marshalltown to Grinnell and was *at the appointed place on time.*

It was a very much surprised young man who received from Grinnell a telegram from the sales manager asking him to come to the factory on the following Monday morning and explain how it was that he had deserted his territory.

Pleasing the Wife

The wife is an important element in the life of a man. A large percentage of the plans of the Champion company are made for the benefit of the wives. Arrangements are made so that men can be home as much as possible. This sometimes necessitates heavy railroad expenses, but Caswell states it is a good investment because it makes better men. This leaving of territory is one of the big points that the sales management has to consider.

Hale Fellows

There is also the fellow who is too much a hale fellow well met. He doesn't realize the difference between real intensive sales work and the mere cultivation of acquaintances. In order to test this the salesmen were one time asked to do something that displeased them considerably. One man in particular was asked to turn in an itemized expense account, showing just which men in the sales organizations of his customers he was spending his money on. No limit was put on the amount of money he might spend and no criticism was made of his expenditure. He was simply asked to show on what men he spent the money.

Some Eye-Opener!

At the end of a certain period, when he was at the factory, he was shown a summary of this itemized report. It showed that certain salesmen in the organization of jobbers were disposing of large quantities of the Champion goods. It also showed that certain men in the jobbers' sales organizations were the recipients of considerable entertainment by this Champion salesman—*and the men who were selling the goods were not men on whom the salesmen had been spending money.* He had thought that he was promoting sales by being a good entertainer, and until the searchlight of scientific selling was put on his work he would not believe that he was *spending money in the wrong place.*

Sales Council

The sales organization is run on more or less socialistic lines. There is a council composed of the territorial managers, six in number. They work out plans under the supervision of the sales management, and have considerable to do with the operations of the sales department.

The salesmen are not required to turn in expense accounts. After a long investigation it was found that salesmen were spending on an average certain amounts. Therefore each man was allowed a certain amount of money each week, plus railroad fares. He is not required to turn in any accounting of it whatsoever.

Incidentally it is interesting to note that during the last three or four years the expense account has been raised three times, a total raise of about 10 per cent. The amount of the expense account was arrived at by setting down all the figures of all the different men, comparing them and arriving at what was considered a reasonable amount. This is standard for all men.

This method, states Caswell, makes the men better salesmen. They are not burdened with figuring out expense account.

It makes men better because it makes them better purchasing agents. They buy hotel rooms according to what they want and think they ought to have, instead of according to what the hotel clerk offers them. If a hotel clerk says he hasn't what they want, the salesman, who has become a buyer with what amounts to his own money, is quite likely to look somewhere else and get what he wants. The result is that the men acquire executive and purchasing ability, all of which adds to their sales fundamentals.

The Men Like It

From this it must not be imagined that the Champion sales organization is not a good place to work or is burdened with scientific and intensive methods to such an extent that a man has no joy in life. On the other hand, the men like the system. It is pretty much a 50-50 affair. There is fairness for the men and fairness for the house, and when a man is shown that the whole proposition is fair both ways, he generally has few kicks on the things that are done.

The system eliminates the irresponsibles and undesirables. The result is that the remaining sales force is one of which a man may be proud to be a member. Everywhere one goes in the trade he is almost sure to find a Champion salesman—at automobile shows, jobbers' conventions and at affairs of other kinds.

A study is made of the merchandising of the product; window display plans are accurately worked out. During the last year fourteen or fifteen window trimming cars have been traveling over the United States trimming thousands of windows. Lately the company changed its window trimming work, making it more efficient and more desirable for the dealer who sells the goods.

A photographic department is maintained for the purpose of showing by concrete illustration such efficiencies as good windows and other merchandising excellencies.

A man who remains a Champion man for any length of time is considered among salesmen a pretty good man. He may not like the system when he begins, but before he gets through he generally is proud to admit that he is one of the pupils under it.

From a sales management point of view the Caswell story is more than a story. It has solved a problem. One day another tradesman, impressed by the large number of fine Champion men he saw, asked: "Where do you get so many good men? I can't get any!"

"We don't get them," replied Caswell. "We make them!"

Farm Comfort and Dea'er Profit

(*Continued from page* 12)

The old kitchen stove is plenty good enough for boiling coffee and so an electric percolator isn't a very good article to sell, but an electric washing machine is another article that is readily sold to the farmers.

It doesn't require any particular overhead to handle this business, and the articles are not so displayed at headquarters that they clutter up the salesroom. Separate facilities are provided for them.

Whenever an order is secured for a farm-lighting system a local electrical contractor is called in to estimate on the work and do the wiring. Clark has nothing whatever to do with this beyond making the arrangement. Instead of resenting the intrusion of the automobile man into the electrical field the electrical contractor, who is not equipped to handle the farm-lighting system, who is not an outside salesman, and who hasn't seemed over-anxious to enter into the field, is only too glad to get the extra electrical contracting that arises from the sale that the automotive man makes.

Clark enthusiastically indorses the idea that the automotive dealer who handles farm-lighting systems can also handle electrical specialties. The profit in them is good and as an after-sale product they move readily. With a little intensive attention to their merchandising, problems that arise are so few that the business is highly desirable.

Automobile Accidents Decrease

ALBANY, N. Y., June 24—Notwithstanding an increase of 66,000 motor cars in New York state during the past year, automobile accidents have been decreased by two-thirds outside of New York city, according to a report of the National Highways association.

Roof 16-Valve Head Advanced

ANDERSON, IND., June 22—The Laurel Motors Corp., which manufactures the roof 16-valve head equipment for Fords, has increased its price to $100, effective July 1. The new equipment includes four racing plugs, a set of anti-leak wires and a coil box plate to attach the coil to the dash.

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Specifications of the Leading Cars

MOTOR WORLD GUIDE

Revisions Are Made in Table Every Week

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
ABBOTT																	
6-62	6-3½x5½	29.4	Remy	Stmbg	Remy	DD	3	122	34x4	SS	$1595	....	$1595	$2150	$2150	....	....
ALLEN																	
Series 41	4-3½x5	22.5	Conn	Stmbg	A-Lite	D	3	112	32x3½	SS	†1145	$1095	....	....	1395	....	....
AMERICAN																	
B	6-3½x5	23.4	G & D	Zenith	G & D	DD	3	122	32x4	SS	1645	1595	1695	....	....	....	....
ANDERSON																	
20	6-3½x4½	25.3	Conn	Zenith	Wsths	DP	3	120	32x4	SS	**1465	....	....	....	2165	....	....
400-F	6-3½x5½	29.4	Bosch	Stmbg	Wsths	DD	3	120	33x4	SS	**1925	....	....	....	....	....	....
APPERSON																	
8-18	8-3½x5	33.8	Remy	Johnson	Bijur	DP	3	130	34x4 32x4½	SS	†2550	....	2550 3500	....	....	....	....
8th Anniversary																	
AUBURN																	
6-39-B	6-3½x4½	25.3	Remy	Rafld	Remy	DP	3	120	34x4	SS	1245	1345	....	....	....	....	1595
6-44	6-3½x5½	29.4	Delco	Rafld	Delco	DP	3	131	35x4½	SS	....	1685	1685	....	2450	....	1985
AUSTIN																	
Hy-King	12-2½x5	39.6	Delco	Stmbg	Delco	D	6	142	34x4½	QD	3750	3750	4000	4550	5000	5250	....
BELL																	
18	4-3½x4½	23.5	A.Kent	Zenith	Dyneto	D	3	114	31x4	QD	†995	995	....	....	....	....	....
BIDDLE																	
H	4-3½x5½	23.5	Eisman	Zenith	G & D	DP	4	121	32x4	QD	2600	....	†2650	....	4100	4000	....
BOUR-DAVIS																	
18B	6-3½x5½	29.4	West.	Stmbg	West.	DP	3	118	33x4½	QD	....	1785	....	....	....	....	....
	4-3½x5½	22.5	West.	Rafld	West.	DP	3	118	32x4½	....	....	1680	....	....	....	....	....
BREWSTER																	
	4-4 x5½	25.6	Bosch	Zenith	U.S.L.	C	3	125	34x4½	SS	5500	. ..	....	....	8400	8500	....
BRISCOE																	
B4-24	4-3 1/16x5½	16.3	Conn	Buick	A-Lite	C	3	104	30x3½	C	825	825	....	....	....	....	850
BUICK																	
E 4-34-35	4-3½x4½	18.2	Delco	Marvel	Delco	C	3	106	31x4	C	795	795	....	....	1185	1845	....
E 44-45	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	118	34x4	SS	1265	1265	....	†1695	....	....	1365
E-49	6-3½x4½	27.3	Delco	Marvel	Delco	DP	3	124	34x4½	SS	....	....	1495	....	2175	....	....
CADILLAC																	
57	8-3½x5½	31.2	Delco	Own	Delco	D	3	125 132	35x5	SS	2970	†2970	2970	....	3840	4160	....
CASE																	
U	6-3½x5½	29.4	Wsths	Rafld	Wsths	D	3	125	35x4½	SS	†1875	1875	1875	....	**2875	....	....
CHALMERS																	
6-30	6-3½x4½	25.3	Remy	Stmbg	Wsths	DP	3	117 122	32x4 34x4	SS	1565	1565	1615	1625	1950	2925	....
CHANDLER																	
	6-3½x5	29.4	Bosch	Rafld	Wsths	DP	3	123	34x4	SS	†1795	†1875	1795	2395	2495	3095	....
CHEVROLET																	
490	4-3 1/16x4	21.7	Remy	Zenith	A-Lite	C	3	102	30x3½	C	660	685	....	....	1060	....	....
FA	4-3 1/16x5½	21.7	Remy	Zenith	A-Lite	C	3	106	32x4	SS	935	935	....	....	1475	....	....
D	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	120	34x4	SS	†1550	1550	....	....	....	....	....
COLE																	
873	8-3½x4½	39.2	Delco	Stmbg	Delco	C	3	127	33x5	SS	2595	†2595	2595	3795	3595	....	....
COLUMBIA																	
C&D	6-3½x4½	25.3	A.Kent	Stmbg	W.Lard	DP	3	115	32x4	....	†1495	1450	....	....	2395	....	....
COMET																	
C-50	6-3½x5½	29.4	Delco	Rafld	Dyneto	D	3	125	33x4	....	....	....	1685	....	....	....	....
COMMONWEALTH																	
4-40	4-3½x5	19.6	A.Kent	Carter	Dyneto	DD	3	115	32x3½	SS	†995	1095	....	....	....	....	....
CROW-ELKHART																	
CE-36	4-3½x5	19.6	Conn	Zenith	Dyneto	D	3	114	32x3½	SS	995	995	....	1295	1395	....	....
CUNNINGHAM																	
	8-3½x5	45.0	Delco	Stmbg	West	D	3	132 142	35x5	....	...	...	4250 6000	....	....	....	....
DANIELS																	
B	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	QDR	3500	3500	3500	....	....	....	....
DAVIS																	
H, I	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	119	34x4	....	....	1585	1585	....	1850	....	....
J, I	6-3½x5½	29.4	Delco	Stmbg	Delco	C	3	126	34x4½	....	....	1950	1950	....	....	....	....
DIXIE FLYER																	
L935	4-3½x5	16.9	Conn	Carter	Dyneto	D	3	112	32x3½	SS	1095	1095	....	....	1275	....	....

Model	Motor	S. A. E.	Ignition	Carbureter	Starting Lighting	Clutch	Gearset	Wheelbase	Tires	Rims	2-Passenger	5-Passenger	7-Passenger	Coupe	Sedan	Limousine	Detachable Top
MAIBOHM																	
A	4-3½x4	15.6	A.Kent	Zenith	Disco	DD	3	105	30x3½	C	$830			$1095	..	....	$865
B	6-3½x4½	23.4	A.Kent	Stmbg	Wagner	P	3	115	32x3½	SS	1150	$1150	*$1150	1650	$1650	....	....
MARMON																	
34	6-3½x5½	33.7	Bosch	Stmbg	Bijur	C	3	136	32x4½	QD	†3750	3700	3750	....	5180	5250	....
MAXWELL																	
25	4-3½x4½	21.0	A.Kent	K D	Simms	C	3	109	30x3½	C	†825	825	....	....	1375	{1275 1175	925
McFARLAN																	
	6-4½x6	48.6	Mag'to	Stmbg	Wsths	DP	3	136	35x5	QD	3900	3900	3900	....	5000	5050	....
MERCER																	
Series 4	4-3½x6½	23.5	Bosch	Zenith	U.S.L.	DD	4	132	34x4½	QD	†3850	*3850	....	....	....	....	....
METZ																	
25	4-3½x4	24.0	A.Kent	A.W.T.	Wsths	F	.	108	32x3½	SS	695	695	....	....	....	....	....
MITCHELL																	
D-40	6-3½x5	25.3	Remy	Rafld	Remy	C	3	120	32x4	SS	1350	1350	....	1900	2000	....	300x
C-42	6-3½x5	29.4	Remy	Stmbg	Remy	C	3	127	34x4	SS	‡1565	1625	1625	2210	2375	2850	300x
MOLINE-KNIGHT																	
C	4-3½x5	22.5	Conn	Schebler	A-Lite	C	3	118	34x4	SS	†1750	1750	....	....	2280	....	....
G	4-4 x6	25.6	Conn	Schebler	A-Lite	C	3	122	35x4½	SS	†2375	....	2375	....	....	....	....
MONITOR																	
C-R	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	110	32x3½	SS	995	995	....	....	....	....	....
J	6-3½x4½	25.3	Conn	Stmbg	Dyneto	D	3	117	33x4	SS	1295	1295	....	....	....	....	....
MONROE																	
M-3	4-3 x4½	14.4	Conn	Zenith	A-Lite	DD	3	96	31x3½	QD	565	†635	....	....	965	....	....
M-6	4-3½x4½	16.9	Conn	Zenith	A-Lite	DD	3	115	32x3½	QD	....	995	....	....	1850	....	....
MOON																	
6-36	6-2½x4½	19.8	Delco	Tltm	Wagner	DP	3	114	32x3½	SS	....	1395	.			....	....
6-66	6-3½x5½	29.4	Delco	Rafld	Delco	DD	3	125	35x4½	SS	†2250	....	2250	2650	2650	....	....
MOORE																	
30	4-3½x4½	22.5	Conn	Schebler	Dyneto	D	3	106	30x3½	....	995	....	....	....	....	....	....
MURRAY																	
	8-3½x5	33.8	Dixie	Zenith	Wsths	DP	3	128	34x4½	....	2800	2800	2800	3600	....	4000	....
NASH																	
662								{127					1545			....	....
661-663	6-3½x5	25.3	Delco	Marvel	Delco	P	3	121	34x4	SS	†1395	1395	....	2085	2085	....	....
664-665																	
NATIONAL																	
Six	6-3½x5½	29.4	Dixie	Rafld	Wsths	C	3	128	34x4½	QDR	2450	†2450	2450	2945	3120	....	....
Twelve	12-2½x4½	39.6	Delco	Rafld	Bijur	C	3	128	34x4½	QDR	3150	†3050	3050	3545	3720	....	....
NELSON																	
	4-3½x4½	15.6	Bosch	Zenith	U.S.L.	D	3	104	32x4	SS	1200	†1400	....	....	....	....	....
OAKLAND																	
34-B	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1050	1050	....	1550	1550	....	....
OLDSMOBILE																	
45-A	8-2½x4½	26.4	Delco	B & Ball	Delco	C	3	120	34x4	SS	....	....	1550	....	....	....	....
37	6-2½x4½	18.9	Remy	Johnson	Remy	C	3	112	32x4	SS	†1295	1295	....	....	....	....	....
OLYMPIAN																	
	4-3½x4½	16.9	Conn	Stmbg	A-Lite	D	3	112	32x3½	....	†1085	1085	....	1340	1565	....	....
OVERLAND																	
85B4	4-4½x4½	27.2	Conn	Tltm	A-Lite	C	3	112	32x4	SS	†965	965	....	1285	1485	....	....
90	4-3½x5	18.2	Conn	Tltm	A-Lite	C	3	{104 106	31x4	C	825	850	†875	....	1340	....	....
85B6	6-3½x4½	25.3	.....	Tltm	A-Lite	C	3	116	32x4	....	1195	1195	....	1420	1620	....	....
OWEN-MAGNETIC																	
M-25	6-3½x5½	29.4	Bosch	Zenith	O-M	OM	6	125	34x4½	SS	....	3300	....	3650	....	4350	....
O-36	6-3½x5½	33.7						{136			†2950	†3950	3950	....	....	5000	....
W-42	6-4 x5½	38.4	Bosch	Zenith	O-M	OM	6	142	35x5	SS	....	....	5300	....	6300	6300	....
PACKARD																	
3-35								{136					4300	....	....	5850	....
3-25	12-3 x5	43.2	Delco	Own	Bijur	DD	3	138	35x5	QD	....	3950	3950	5300	....	5500	....
PAIGE																	
6-39	6-3½x5	23.4	Remy	Stmbg	G & D	D	3	117	32x4	SS	1395	1395	....	....	1925	....	....
6-55	6-3½x5½	29.4	Remy	Rafld	Remy	D	3	127	35x4½	SS	....	....	1850	2850	....	3250	....

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DOBLE-DETROIT																			
	2-5 x4	....	Doble	Stmbg	Wagner	..	.	135	36x5	....	....	....	3750	....	....	....	....
DODGE BROTHERS																			
	4-3½x4½	24.0	Own	Stewart	N.E.	D	3	114	{32x3½ 33x4	SS	985	985	....	1425	1425	....	....
DORRIS																			
6-80	6-4 x5	38.4	Bosch	Stmbg	Wsths	DD	3	132	33x5	SS	....	....	....	....	....	....	....
DORT																			
11	4-3½x5	19.6	Conn	Carter	Wsths	C	3	105	30x3½	QD	925	925	**1060	1325	1325	....	....
DOUGLAS	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	123	34x4	SS	...	2000	....	....	....	....	....
ELCAR																			
D.F.	4-3½x5	19.6	A.Kent	L-O	Dyneto	DP	3	116	{33x4 32x3½	SS	....	1175	1175	....	{1625 1795	....	....
	6-3½x4½	25.3	A.Kent	Stmbg	Dyneto	P	3	116	33x4	....	....	1295	1295	....	....	....	....
ELGIN																			
A	6-3 x4½	21.6	Remy	Stmbg	Wagner	DP	3	117	33x4	....	†1165	1165	....	....	**1645	....	....
EMPIRE																			
50-51	4-3½x5	24.0	Conn	Stmbg	A-Lite	DP	3	115	33x4	SS	1165	1125	....	....	....	....	....
70-A	6-3½x4½	25.3	Conn	Stmbg	A-Lite	DP	3	120	34x4	SS	....	1345	1375	....	....	....	....
73	.....	.....	.....	.....	.....	..	.	.....	.....	....	....	†1360	....	....	....	....	....
ESSEX	4-3½x5	18.2	Delco	Own	Delco	D	3	108½	32x4	....	....	1395	....	....	....	....	....
FIAT																			
E-17	4-5½x6½	44.1	Bosch	Zenith	Wsths	D	4	140	35x5	QD	....	....	5500	....	....	6500	....
FORD																			
T	4-3½x4	22.5	Own	{Holly Knight	.....	D	2	100	30x3½r	C	435	450	....	560	695	....	....
FRANKLIN																			
9	6-3½x4	25.3	A.Kent	Own	Dyneto	D	3	115	33x4½	SS	2400	2450	†2450	....	3350	3400	....
GLIDE																			
6-40	6-3½x5	23.4	Wsths	Rafid	Wsths	D	3	119	34x4	SS	†1495	1495	....	....	1795	....	....
GRANT																			
G	6-3 x4½	21.6	Remy	Stmbg	Wagner	C	3	114	32x3½	....	‡1095	1095	....	1575	1595	....	1350
HALLADAY																			
S	6-3½x5	23.4	A-Lite	Zenith	Wsths	D	3	{120	34x4	SS	‡1375	1375	....	....	....	....	....
R	.....	....	.....	.....	.....	..	.	{122	....		1530	1530	....	....	....	....	....
HARROUN																			
	4-3½x5½	16.9	A.Kent	Stmbg	Remy	C	3	106	30x3½	....	....	995	....	....	....	....	....
HARVARD																			
4-30	4-3 x4½	14.4	A.Kent	Zenith	Wagner	..	3	100	28x3	....	750	†985	....	....	....	....	....
HAYNES																			
38	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	121	34x4	SS	....	1850	....	....	....	....	....
39	6-3½x5	29.4	Remy	Rafid	L-N	DP	3	127	35x4½	SS	†1950	....	1950	2660	....	....	....
44	12-2½x5	36.3	Delco	Rafid	L-N	DP	3	127	34x4½	SS	†2910	....	2910	....	3460	....	....
HOLLIER																			
206	6-3½x4½	25.3	Remy	Stmbg	Splitdf	C	3	116	32x4	SS	....	1485	....	....	....	....	....
188	8-3 x4½	28.8	A.Kent	Stewart	Splitdf	C	3	116	34x4	SS	†1385	1385	....	....	....	....	....
HUDSON																			
Super-6	6-3½x5	29.4	Delco	Own	Delco	D	3	125½	34x4*	SS	....	†2050	1950	....	2750	3400	....
HUPMOBILE																			
R	4-3½x5½	16.9	A.Kent	Stmbg	Bijur	DD	3	112	32x4	....	1350	1350	....	....	....	....	....
INTER-STATE																			
T	4-3½x5	19.6	Remy	Schebler	Remy	C	3	110	33x4	SS	950	1000	1025	....	....	....	....
JACKSON																			
349	8-3 x3½	28.8	A.Lite	Zenith	A-Lite	DP	3	118	34x4	SS	†1495	1495	1570	....	2195	....	....
JONES																			
27-ABC	6-3½x5½	29.4	Remy	Rafid	Wsths	DP	3	125	34x4	SS	†1875	1875	1875	....	2750	....	....
JORDAN																			
J-60	6-3½x5½	29.4	Delco	Stmbg	Bijur	DD	3	127	33x4½	SS	1995	†1995	1995	....	2750	3500	....
KING																			
F	8-3 x5	28.8	A.Kent	B & Ball	Bijur	DP	3	120	34x4	SS	....	†2350	2150	....	**2950	....	....
KISSEL																			
100-pt.	6-3½x5	25.3	Remy	Stmbg	Own	C	3	117	34x4	SS	†1495	1495	1585	1935	1935	....	1935
Double-6	12-2½x5	39.6	Delco	Stmbg	Own	DD	3	128	34x4½	....	1585	....	2450	....	2850	....	2850
KLINE																			
6-38	6-3½x4½	25.3	Wsths	Rafid	Wsths	DP	3	120	34x4	SS	1595	1595	†1595	....	2200	....	....
LEXINGTON																			
6-O	6-3½x4½	25.3	Conn	Rafid	Wsths	DD	3	116	32x4	QD	....	1385	....	....	1545	....	....
6-R	6-3½x4½	25.3	Conn	Rafid	Wsths	P	3	122	34x4	QD	....	1585	1585	....	1785	....	....
LIBERTY																			
10-B	6-3½x4½	25.3	Delco	Stmbg	Delco	DP	3	115	32x4	SS	1485	†1485	1485	....	....	....	....
LOCOMOBILE																			
E-38	6-4½x5	43.3	Berling	B & Ball	Wsths	DD	4	139	37x5	QD	†5150	*5000	5000	....	....	6200	....
E-48	6-4½x5½	48.6	Berling	B & Ball	Wsths	DD	4	142	37x5	QD	†6050	*5950	5950	....	....	7200	....
LOZIER																			
84	4-4½x5½	28.9	Bosch	Stewart	G & D	D	4	120	36x4½	SS	....	....	1695	....	....	....	....
82	6-3½x6	36.0	Eisman	Rafid	G & D	D	3	132	36x4½	SS	....	....	2775	....	....	....	....
LUVERNE																			
17	6-3½x5	33.7	Bosch	Schebler	Bosch	DD	.	132	35x4½	SS	....	....	1650	....	....	....	....
MADISON																			
	6-3½x5	23.4	Remy	Rafid	Remy	DD	3	{124 {120	34x4	SS	†1485	1485	1485	....	....	....	....
MAN-AMERICAN																			
G-6	6-3½x5	28.4	G & D	Rafid	G & D	D	3	120	32x4½	SS	....	1650	....	1650	....	1950	. ..
PATERSON																			
6-45	6-3½x4½	25.3	Delco	Stmbg	Delco	C	3	120	32x4	C	†1495	1265	1495	....	**1795	....	....
PEERLESS																			
56	8-3½x5	33.8	A.Kent	B&Ball	A-Lite	DD	3	125	35x4½	SS	†2550	....	2550	3050	3350	3600	....
PIERCE-ARROW																			
38-C-4	6-4 x5½	38.4	Bosch	Own	Wsths	C	4	134	34x4½	QD	4800	4800	†4800	5900	....	....	....
48-B-4	6-4½x5½	48.6	Bosch	Own	Wsths	C	4	142	35x5	QD	5400	5400	5500	6800	....	....	....
66-A-4	6-5 x7	60.0	Bosch	Own	Wsths	C	4	147½	36x5½	QD	†6400	6400	6500	7800	....	....	....
PILOT																			
6-45	6-3½x5	23.4	Delco	Titsn	Delco	DP	3	120	32x4	SS	†1395	1395	....	....	....	....	....
PREMIER																			
6-C	6-3½x5½	27.3	Delco	Johnson	Delco	DP	3	125½	35x4½	SS	....	†2285	2285	....	....	....	....
PRINCESS																			
36-F	4-3½x4½	22.5	Splitdf	Schebler	Disco	D	3	108	32x3½	....	875	875	875	....	....	....	....
REGAL																			
J	4-3½x4½	19.6	A.Kent	Carter	A-Lite	C	3	108	30x3½	QD	....	795	....	....	....	....	....
REO																			
	6-3½x5½	30.4	Remy	Rafid	Remy	DD	3	126	34x4½	SS	....	1550	1550	....	....	....	....
	4-4½x4½	27.2	Remy	Johnson	Remy	DD	3	120	34x4	SS	1295	1295	....	....	....	....	....
REVERE																			
	4-4½x6	30.6	Bosch	Stmbg	Bijur	DD	4	130	32x4½	....	....	....	....	....	....	....	....
ROAMER																			
C-6-54	6-3½x5½	29.4	Bosch	Stmbg	Bijur	DP	3	128	32x4	SS	2475	†2375	....	....	....	....	....
D-4-75	4-4 x6	25.6	Bosch	Stmbg	Bijur	DP	3	128	32x4½	SS	....	....	2475	....	3250	....	....
ROSS																			
	8-3½x5	33.8	.....	.....	W.Lnrd	DD	3	130	35x4½	SS	‡1850	....	1850	....	....	....	....
SAXON																			
S-4	6-2½x4½	19.8	Remy	Stmbg	Wagner	DD	3	112	32x3½	SS	935	1045	....	1395	....	....	....
SAYERS																			
SIX-42	6-3½x4½	25.3	Delco	.....	Delco	P	3	118	32x4	....	....	1395	....	....	....	....	....
SCRIPPS-BOOTH																			
D&H	8-2½x3½	22.0	Remy	Zenith	Wagner	DD	3	120	32x4	SS	†1285	....	....	....	....	....	....
G	4-3½x4	21.7	Remy	Zenith	Remy	C	3	110	30x3½	C	‡935	....	....	....	....	....	....
Six-39	6-2½x4½	19.0	Remy	Marvel	Remy	C	3	112	32x4	SS	1195	1195	....	....	....	....	....
SIMPLEX																			
V	6-4½x6½	45.9	Eisman	Nwcmb	Bosch	D	4	143½	37x5r	QD	Chassis	7000	....	....	....	....	....
SINGER																			
	6-4 x5½	38.4	Bosch	Rafid	Wsths	DD	4	139	35x5	QD	4200	†4325	4100	....	5250	5125	....
STANDARD																			
G	8-3½x5	33.8	Wsths	Zenith	Wsths	D	3	127	34x4½	....	†2450	....	2450	....	3500	4000	....
STANLEY																			
Steamer	2-4 x5	12.8	.....	.....	.....	..	.	130	35x4½	SS	....	†2750	2800	....	....	....	....
STEARNS																			
SKL4	4-3½x5½	22.5	Remy	Schebler	Wsths	DD	3	119	34x4	SS	†1935	1935	2175	2400	2575	3200	....
SK8	8-3½x5	33.8	Remy	Rafid	Wsths	DD	3	125	35x4½	SS	†2700	....	2700	3200	....	3875	....
STEPHENS																			
Salient Six	6-3½x4½	25.3	Delco	Stmbg	Delco	P	3	118	32x4	SS	1585	1585	†1650	....	2085	....	....
STUDEBAKER																			
SH-4-40	4-3½x5	19.6	Remy	Schebler	Wagner	C	3	112	32x3½	SS	1125	1125	....	....	1685	....	....
EH-6-50	6-3½x5	29.4	Remy	B&Ball	Wagner	C	3	119	32x4	SS	1585	1585	†1585	....	....	....	....
E-G-6	6-3½x5	36.0	Remy	B&Ball	Wagner	C	3	126	33x4½	....	....	1985	....	....	2185	....	....
STUTZ																			
S-7	4-4½x5	30.6	Delco	Stmbg	Remy	C	3	{120 130	32x4½	SS	2550	†2650	*2750	....	....	....	....
SUN																			
17	6-3½x5	29.4	Remy	Rafid	Remy	DP	3	116	34x4	SS	†1345	1345	1345	....	....	....	....
TEMPLAR																			
A-445	4-3½x5½	18.2	Remy	Zenith	Remy	P	3	118	32x4	SS	2385	2085	....	....	....	....	....
VELIE																			
38	6-3½x4½	25.3	Remy	Rafid	Remy	DP	3	115	32x4	SS	1390	1390	†1390	....	1935	....	....
39	6-3½x5½	29.4	Remy	Rafid	Remy	DP	4	124	33x4½	SS	....	....	1645	....	....	....	....
WESTCOTT																			
S-18	6-3½x5½	29.4	Delco	Rafid	Delco	DD	3	125	35x4½	SS	†1990	2290	2090	**2890	**2890	....	....
WHITE																			
16-Valve	4-4½x5½	28.9	.....	Own	L-N	P	4	{124½ 137½	35x5	U	†5000	....	†5000	6050	6050	6200	....
WILLYS-KNIGHT																			
88-4	4-4½x4½	27.2	Conn	Titsn	A-Lite	C	3	121	34x4½	SS	....	....	1625	2275	2325	2425	....
88-8	8-3½x4	36.4	Remy	Zenith	A-Lite	C	3	125	34x4½	SS	†2550	....	2100	....	2800	2900	....
WILLYS																			
89-6	6-3½x5½	29.4	Conn	Titsn	A-Lite	C	3	120	33x4½	SS	†1450	....	1450	....	1330	....	....
WINTON																			
33	6-3½x5½	33.7	Bosch	Rafid	Bijur	DD	4	128	36x4½	QD	3150	3150	3200	4150	4400	4400	....
48	6-4½x5½	48.6	Bosch	Rafid	Bijur	DD	4	138	37x5	QD	3850	3850	3850	4850	5100	5100	....
WOOD'S																			
Dual Power	4-2½x4	12.1	A.Kent	Stmbg	Own	Mag	.	124	35x4½	QD	....	....	....	2950	....	....	....

*6-passenger. †4-passenger. ‡2-passenger. t-town car.
**Convertible.

ABBREVIATIONS—"A. Kent" Atwater Kent, "A-Lite" Auto-Lite, "B. & Ball" Ball & Ball," "Conn" Connecticut, "G & D" Gray & Davis, "Eisman" Eisemann, "L-N" Leece-Neville, "N. E." North East, "Nwcmb" Newcomb, "O-M" Owen Magnetic, "Rafid" Rayfield, "Stmbg" Stromberg, "Splitdf" Splitdorf, "Titsn" Tillottson, "Wsths" Westinghouse, "W. Lnrd" Ward Leonard, "D" Disk, "DD" Dry Disk, "P" Plate, "DP" Dry Plate, "C" Cone, "F" Friction, "G" Gearless, "CU" Control Unit, "Mag" Magnetic, "SS" Straightside, "QD" Quick Detachable, "C" Clincher, "DC" Detachable Clincher, "QDR" Quick Detachable Reversible, "U" Universal, "R & M" Robbins & Myers. . NOTE—37½x5½ r means that the rear tires are 37x5½ and the front are smaller. Detachable top, 300x, means $300 extra.

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Books Received

For a long time there has been a crying need for a standard work of reference for the use of garage mechanics—a work which will tell them in one, two, three order the correct method of doing any given job on an automobile.

Few authors, however, have realized the fact that the garage mechanic often is unschooled—has not that patience with lengthy descriptions which comes from learning to read books intelligently. In consequence such books on repair methods as have been produced have failed of their object because mechanics could not be induced to read them and to put into practice the methods which have been described.

With these thoughts in mind the U. P. C. Book Co. has published "The Automobile Repairman's Helper," this being a collection of Better Mechanics articles which have appeared in Motor World during the past 2 years on methods of repairing motor vehicles from the repairer's point of view. The articles are intensely practical in nature.

For example: The reader is told in one article giving explicit instructions for the adjustment of a certain rear axle that a grinding noise may be caused by looseness between the gears or by worn teeth; that a peculiar clicking when letting in the clutch or when changing gears is due to slack in the driving system; that an intermittent catch or one that occurs with every revolution of the wheels may be caused by broken teeth, in which case tearing down the complete axle is necessary.

The article describing the method of making this particular adjustment is typical of every other one in the book. After delineating the symptoms of trouble, the method of curing each kind of trouble as indicated by a particular symptom is told in one, two, three order; all superfluous descriptions have been eliminated. The mechanic is told only exactly what he must do and is given the correct order in which to do it.

He is told, for example:

(1) To raise the car from the axle by an overhead block.
(2) To remove the front floor boards.
(3) To disconnect brake rods.
(4) To remove saddles holding the vertical bearings on the driving yoke ring at the rear of the transmission.
(5) To unscrew the brass packing collar on the sleeve of the universal joint at rear of transmission.

Straight through the instructions for completing this job the various steps are given in their proper sequence and, as pictures have from the earliest time been the most successful means of conveying an idea, each important step in the method is illustrated either with photographs, blueprints or pen-and-ink sketches, the latter being made while such a job was actually being done in a repairshop.

The need for the series has long been apparent and the decision to prepare this series of articles came as a result of a series of inspection and investigation tours in the course of which members of the editorial staff of Motor World visited upward of 1500 garages and repairshops in widely separated sections of the country.

It was the object of these visits to ascertain present methods of handling frequently recurring repair jobs, to compile data on these jobs, information concerning tools, equipment, etc., and to obtain very complete descriptions of how different mechanics tackled such jobs and finished them.

The method employed in preparing one of these articles will give some idea of the value of the work to practical mechanics. In the case of routine adjustments on a given car, for example, perhaps a dozen or more repairshops and service stations specializing on that particular car were visited. In each the method of handling a certain job was studied and the whole matter gone over in detail with the mechanic in the shop most competent on that particular job.

With all this information in hand it then became the duty of the author to extract from these dozen or more methods and to combine them so as to obtain the one best method and tools for the job. Obviously this has given the series an intensely practical slant.

Selden Thornton Williams, the author, was graduated from the Worcester Institute of Technology as mechanical engineer. Subsequently he spent considerable time in various large and small repairshops as a practical mechanic. At present he is naval aeronautical engineer at the Philadelphia Navy Yard.

The Automobile Repairman's Helper is a pocket size book, 4⅞ x 7 in., bound in serviceable red fabrikoid and containing 448 pages.

The volume is comprehensively indexed and cross indexed. It sells for $2.50 postpaid.



MEMBERS of the Cincinnati Automobile Dealers' Association developed a successful project in connection with the recent Red Cross drive by appealing to all citizens to dump their old tires, inner tubes and other rubber accessories on Fountain Square to build "Mt. Rubber." The response was generous, as will be seen by the accompanying photograph of "Mt. Rubber." The picture shows H. K. Shockley, general manager of the Cincinnati Automobile Dealers' Association on the pyramid. Equally generous was the bidding for the old rubber, more than $2,000 being realized, all of which was turned over to the Red Cross Fund by W. G. Welbon, treasurer of the association. One of the unusual contributions to the dealers' collection was a truck, which the owner presented in its entirety because he "could not get the tires off." It brought $50 in the sale.

Coming Events

Racing

Cincinnati	Cincinnati Speedway	July 4

Show

Dallas, Tex.	Seventh Annual Texas Automobile Show Texas State Fair.	Oct. 14-27

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National



A HIGH STANDARD OF THRIFT

THAT high standard of excellence by which National Cars are known is as much a standard of thrift as it is of fitness.

The extreme reliability which exists in every detail of their construction and operation is the basis of fundamental and thorough economy.

This, therefore, is far more than an economy expressed in moderate operating costs only.

A considerable part of it proceeds from the great stamina of National Cars by virtue of which, during long uninterrupted service, they remain largely free of even trivial troubles.

Consequently the possessor of a National Car equipped with either the six or twelve cylinder airplane-type motor enjoys an unusual automobile and, at the same time, finds that both his running and upkeep charges are reasonable.

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Six and Twelve Cylinder Models

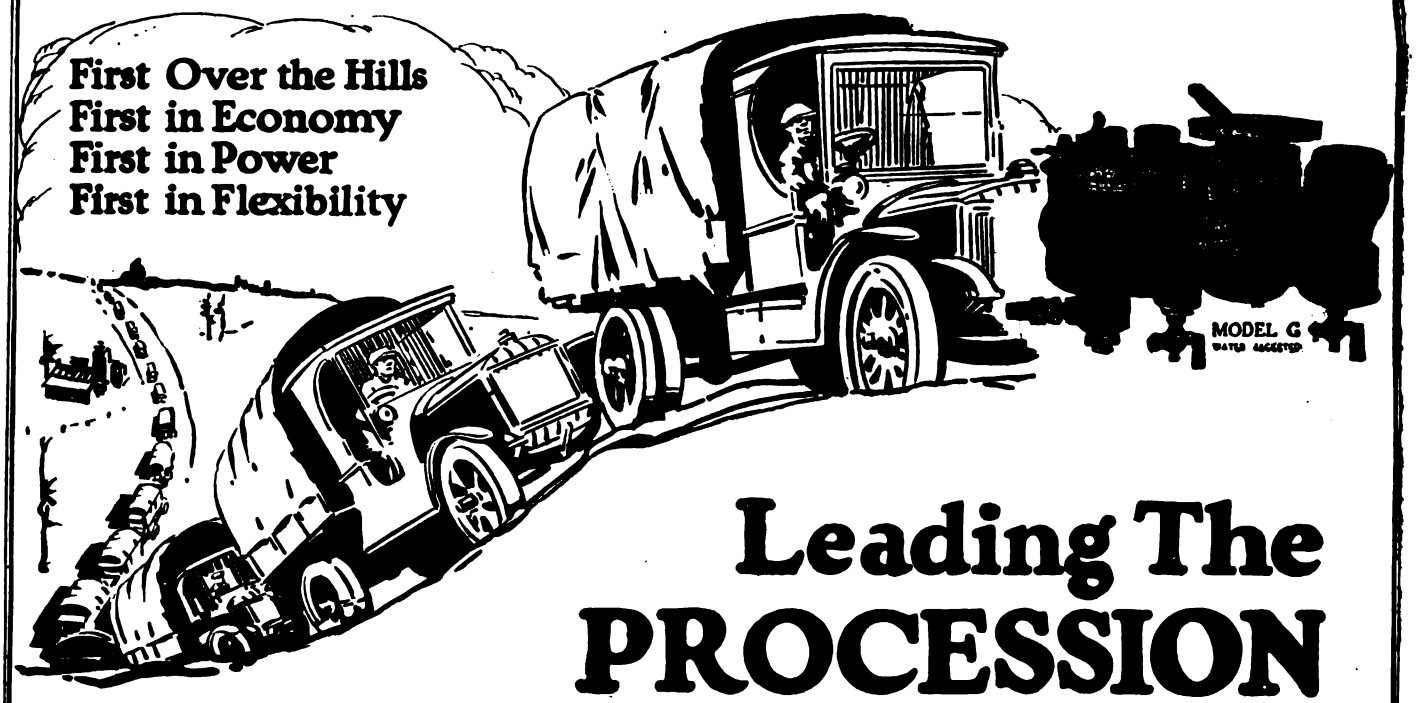
7-Pass. Touring Car, 4-Pass. Phaeton, 4-Pass. Roadster, 7 Pass. Convertible Sedan

Open Car Prices—The Six, $2450; The Twelve, $3050

The Six Sedan, $3120; The Twelve Sedan, $3720

Government's War Revenue Tax Extra Charge

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How to make the Motor Truck a more efficient factor in transportation

The Waltham Model O Truck Clock

Specified by U. S. Government to run War Trucks on Schedule Time

Not a day goes by but that the motor truck proves to be more and more of an absolute necessity in transportation. It has really come into its own.

Rails and freight yards may be congested but the highways of America are always open for motor truck traffic. When the railroads fail to deliver a shipment within reasonable distance—the motor truck comes to the rescue.

In normal times, trains that are run efficiently—run on strict schedule time. Now that motor trucks are in so many instances doing the work of railroads—isn't it just as important that they also should operate with railroad punctuality?

This necessitates equipping each truck with an accurate, reliable clock which will enable the driver to come and go as per schedule.

This idea has been proved sound by the U. S. Government which recently purchased 10,000 trucks for military purposes and specified that they must be equipped with the Waltham Model O Truck Clock.

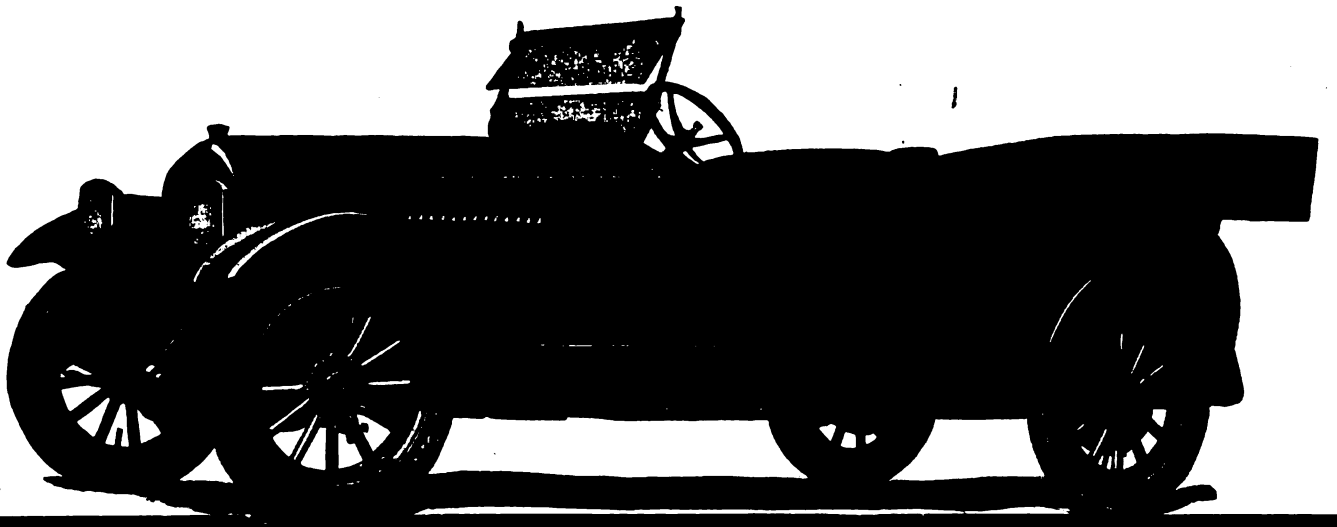
Here is the only truck clock that will keep accurate time all of the time—because it is built to withstand climatic changes and the shocks of travel over rough roads.

Has two mainsprings and the radium dial and hands are plainly visible on the darkest night. You wind it only once in eight days at the flash of a red signal on the dial.

Ask us to tell you more about the Waltham Model O Truck Clock and how it will help to increase the efficiency of your motor trucks.

WALTHAM WATCH COMPANY, WALTHAM, MASS.

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"It's a Pippin!"

Says Fred Etchen

Head of Etchen Auto Company, Coffeyville, Kansas, Distributors of Studebaker Cars, Enthuses Over New BIG-SIX

"This New Series 19 Studebaker BIG-SIX is certainly a 'pippin' and making some hit in this part of Kansas. We will be able to sell, and have already sold, some of these beautiful BIG-SIXES to prospects who were in the market for cars in the $3,000 class."

This letter proves that Studebaker dealers have a line this year that appeals to the most exacting motorists and satisfies them completely at a much lower price than they have been accustomed to paying.

Beautiful in Design
Thoroughly Modern
Mechanically Right

Studebaker

The LIGHT-FOUR $1125
The LIGHT-SIX . 1585
The BIG-SIX . . . 1985

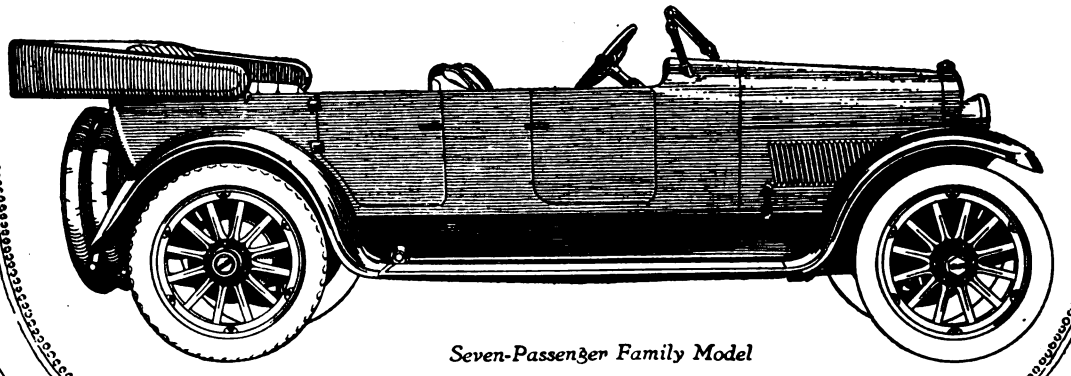
All prices f. o. b. Detroit
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Address all Correspondence to South Bend

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CASE SIX



Seven-Passenger Family Model

Case Engineers Studied All Cars Before They Built This New CASE Six

BEFORE finally designing the New CASE Six, Case engineers searched all motordom, appraising the different advantages of all high-grade cars. They chose for this car the finest features, those most wanted regardless of cost. By a process of elimination this master car was designed.

No one feature predominates. The New CASE Six is an All-Feature Car. Knowing buyers find nothing lacking in this car. When it came to deciding on the price, even we were surprised at its lowness. Case factory efficiency and selling economies enabled us to offer this car at a much lower figure than even we deemed possible.

The Family Model, for seven or five people, dark blue, is offered for $1875. The Sport Model, for four people, color periscope green, is priced at $1875. The All-Seasons Model, Springfield type, color dark blue, sells for $2375.

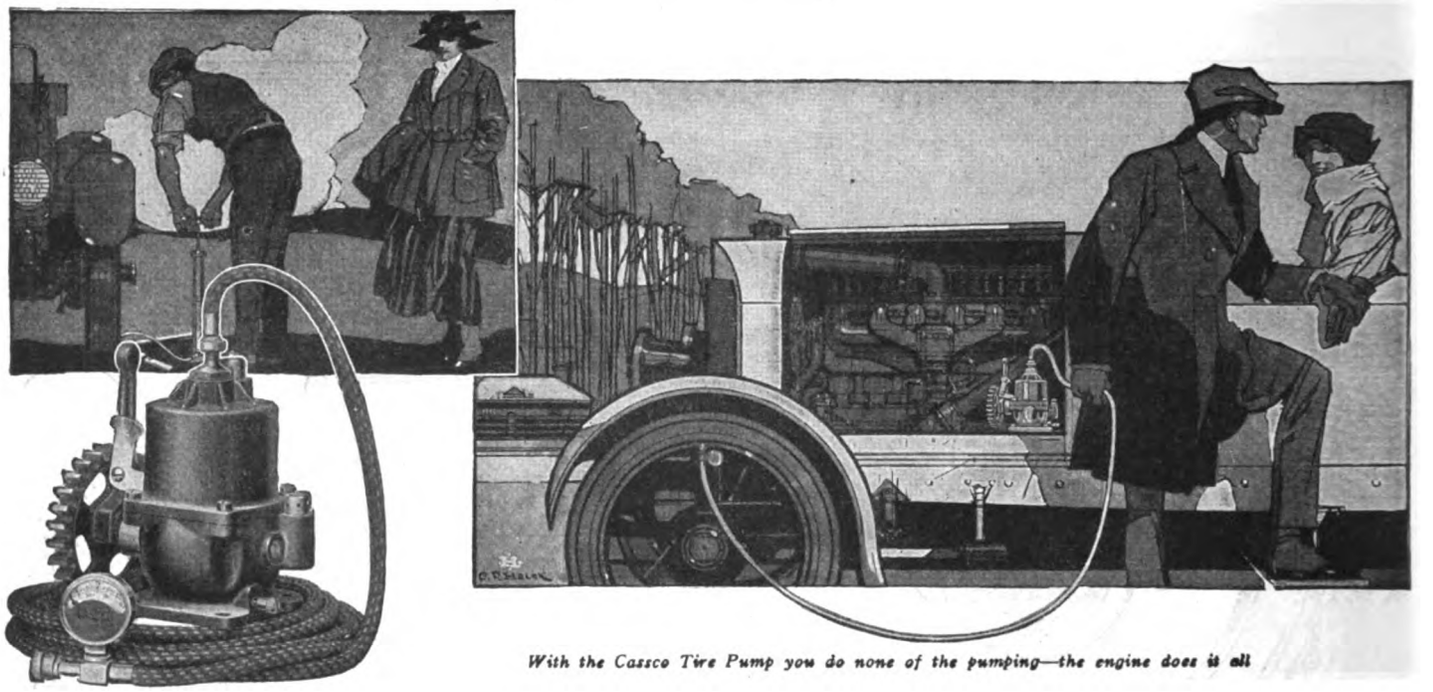
See this car. Ride in it. Drive it yourself. Then compare it with cars costing much more. You will find no other car offers you as much—regardless of price.

(758)

DEALERS: A limited number of keen business men may obtain this Case Six for their patrons. Perhaps you may arrange to participate with us. If you will write we will gladly tell you.

J·I·CASE T·M·CO·INC·*Founded 1842* 283 LIBERTY ST·RACINE, WIS·

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With the Cassco Tire Pump you do none of the pumping—the engine does it all

Why break your back?

It costs money to do it

Pumping tires by hand is such weary, tiresome work, you are very apt to leave the tires improperly inflated.

Soft tires are the cause of 80% of tire troubles, according to tire authorities. Properly inflated tires mean high mileage.

The Cassco Engine-Driven Tire Pump insures well-inflated tires. You can get 40% to 100% more mileage out of properly inflated tires. That is $30 or $40 a year. Half a season's mileage will pay for the pump, and you avoid hard, dirty hand-pumping.

Get a good pump

When you get a pump get a real one. The Cassco Pump will inflate a 34 x 4 tire to 80 lbs. pressure in 90 seconds. That's a pump!

Good markets for the dealer

Nine out of ten motorists are prospects for a Cassco. Every car driven by a woman should have this engine-driven pump. A splendid market exists among new drivers because they generally buy a good hand-pump and the gauge. Get them to add a few dollars more and get a real pump. It includes one of the finest gauges made.

Cassco Pumps are on the good cars. The Cassco is one of the easiest accessories to sell because it gives so much real service. Less work and more mileage makes a strong appeal.

No oil spray

The Cassco is factory-built all through. That means better satisfaction than is possible from assembled pumps. A special design of piston and cylinder prevents oil spray, so fatal to tires. Easy to install.

Sell by demonstration

The way to sell a Cassco is to show it. Put one on your own car. Show your customers how it works. Saving the motorist's back is a strong argument. Saving their tires—a stronger one.

Write today for full information. It's profitable.

Complete with all fittings including fine gauge - - - - **$15.00**
Powerful pump—easy to install.

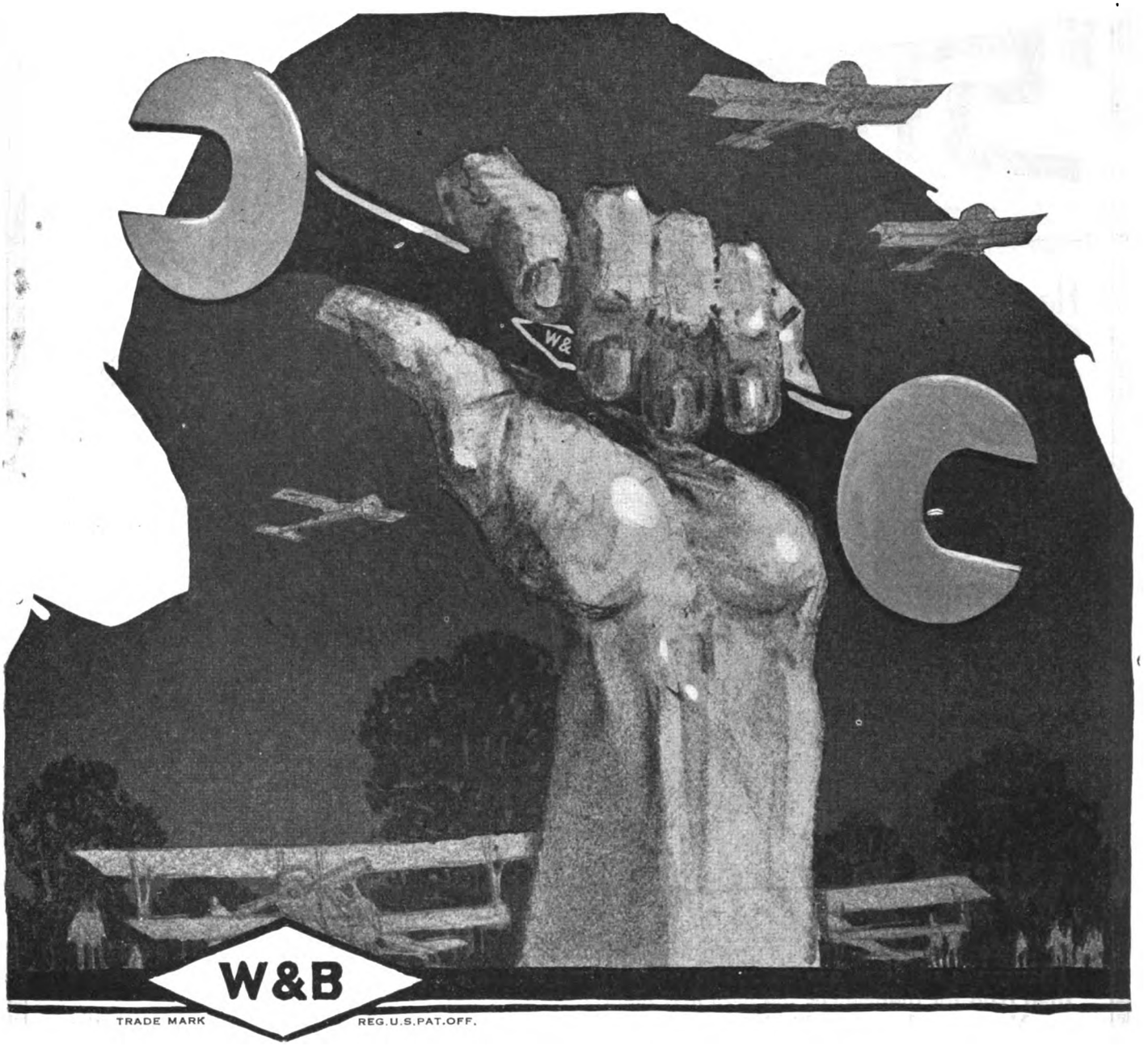
Ford Special - - $10.00
Complete with all fittings including fine gauge. Powerful pump—easy to install.

Sales Department
EDWARD A. CASSIDY CO., Inc.
Madison Avenue at 40th Street, New York City

Manufacturers
THE WEST SIDE FOUNDRY CO.
Troy, N. Y.

CASSCO TIRE PUMP
ENGINE DRIVEN

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Over, On or Underneath the Ground

From airplanes to tunnels, from skyscrapers to submarines, from silk mills to machine shops—for every industry and every machine that has nuts and bolts, there's a "W. & B." wrench to take off or pull on the job.

All sizes and styles, single and double head, for special or general services, and every wrench drop forged from the precise kind of steel that long experience has determined best for the purpose. Wherever you see "W. & B." on a tool, you know it's a good one in design, materials and workmanship.

The Whitman & Barnes Mfg. Co.

Send us your drawing and specifications for special drop forgings.

GENERAL OFFICES: AKRON, O.
Factories: Akron, O., Chicago, Ill., St. Catharines, Ont. New York Store and Offices, 64 Reade St.

Established 64 years

When writing advertisers please mention Motor World—it identifies you.

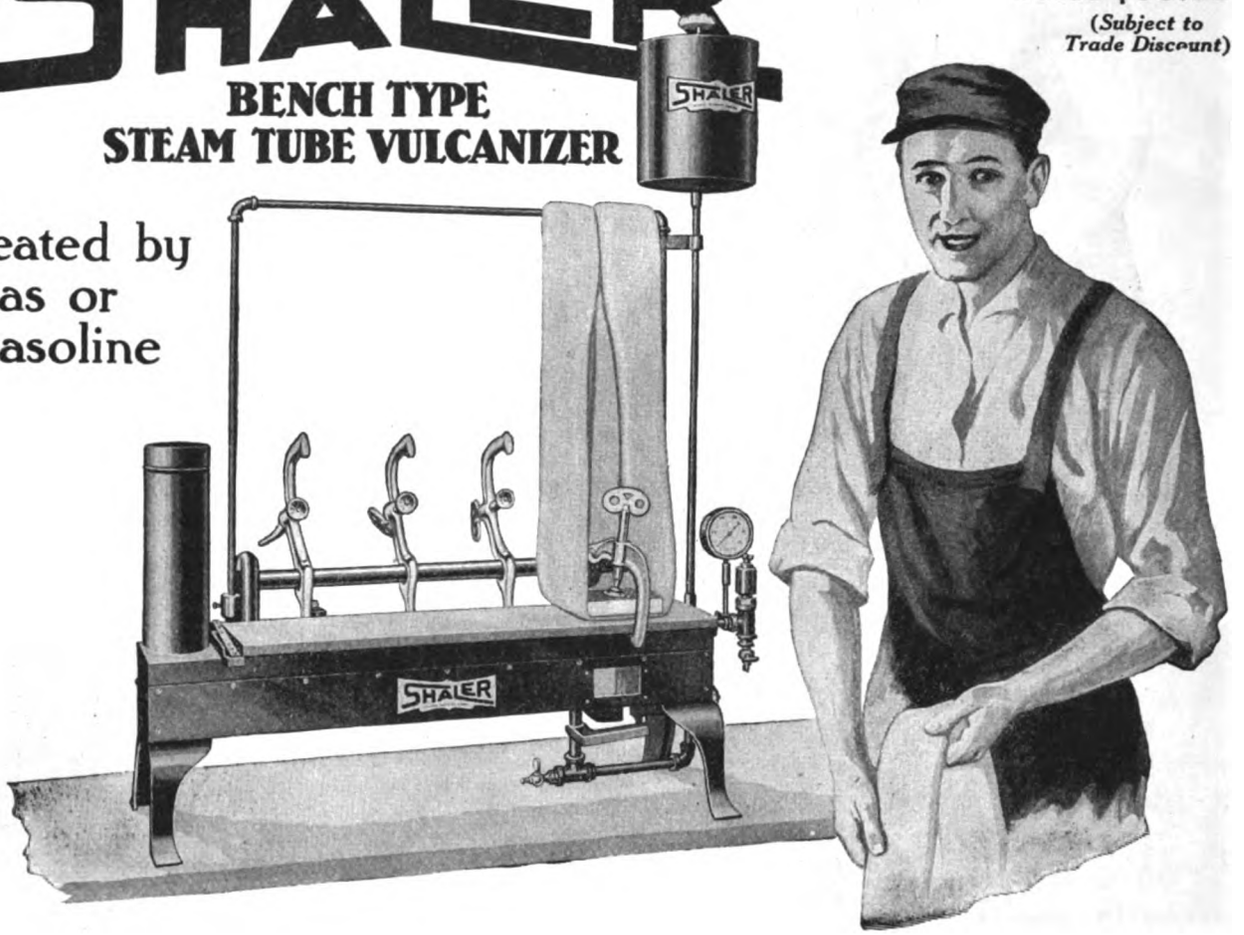
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SHALER

BENCH TYPE STEAM TUBE VULCANIZER

Type "L-40"
Price $35.00
(Subject to Trade Discount)

Heated by Gas or Gasoline



Will Pay for Itself in a Week

This SHALER Tube Vulcanizer is the most popular vulcanizer ever put on the market. Thousands of them are in use in Garages and Repair Shops, and many of them have more than paid for themselves the *very first day* they were used!

You can do every kind of tube repairing with this vulcanizer, just as well as with the most expensive machines costing many times as much.

It repairs four tubes *at one time*—and vulcanizes perfectly any size or shape of puncture or cut up to two feet in length. There is no vulcanizer made that will turn out better work or do it more quickly—why think of paying a big price for a vulcanizer that will do no more than this practical SHALER Tube Vulcanizer!

Easy to Operate—Automatic Heat Control—SAFE!

Even a boy can make perfect repairs with this vulcanizer. You don't need experience. Your ordinary garage help can repair any size or kind of inner tube—and make a perfect job of it.

The SHALER Vulcanizer is the only one that has automatic heat control. Requires no watching or regulating, yet there is no danger of overheating tubes or undercuring the rubber. Takes up very little room in your garage or repair shop—it can be placed on any work bench and moved about at will. This vulcanizer uses little fuel—is furnished with either gas or gasoline burner—or both can be had if desired.

All Jobbers Sell This Popular Outfit

Ask your jobber now for complete information about SHALER Bench Tubo Vulcanizers—or send to us for the new SHALER Catalog of Shop Vulcanizers. Investigate—but do it NOW!

C. A. Shaler Company, 423 Fourth Street, Waupun, Wisconsin

Oldest and Largest Manufacturers of Vulcanizers

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Do You Appreciate the Magnitude of the Maxwell Motor Car Company

More and more, automobile distributors are considering the future, its perils and its possibilities.

Which of the concerns now in business will be able to weather the storms—meet the severe demands of war and weather the gale of competition that will follow?

You, and every other successful merchandiser of motor cars and trucks, are trying to determine which will endure—which will pass.

For you have come to the conclusion that changes are wasteful and expensive.

You want to tie to one line for keeps.

And your experience teaches you that such a concern must be strongly fortified financially and splendidly equipped to manufacture a full line of passenger cars and trucks—and eventually also farm tractors.

Dealers are apprehensive just now—and not without reason—that we may be unable, because of the great amount of Government work we have taken on, to supply them enough motor cars and trucks to keep them in business.

The best answer to all such is to show, as we do on the following seven pages, reproductions of the various Maxwell factories.

We have a lot of Government work—every Maxwell plant is doing its full part.

We are doing all Uncle Sam has asked us to do—willing and eager to do as much more as he may desire.

But, while it is now certain that our motor car production will be seriously curtailed, still we hope to be able to take care of distributors and dealers as well as any other concern in the business.

Reduced to the size of a page, a 20-acre plant looks small.

Study the pictures however—you will have a better idea of the magnitude of this concern—a clearer conception of our tremendous manufacturing facilities.

Maxwell Motor Cars and Trucks are made in their entirety in the Maxwell plants.

We are genuine manufacturers—not assemblers.

We can guarantee the product, because, making every part ourselves, we know that every part is good.

We make a complete line—keep abreast of the times. And we like to do business year after year with the same folk.

For a permanent connection and a profitable business, you'll find this the most likely and desirable.

MAXWELL MOTOR COMPANY Inc.
DETROIT, MICH.

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Maxwell Factory Facilities

Plant No. 1—Detroit

This plant, familiarly known as the Oakland plant, has an area of 650,592 square feet.

Here Maxwell cars are assembled.

There is also a large machine shop in which are manufactured many parts of the motor. Final assembly and chassis testing are also done here.

At this place also are the Maxwell Laboratories, the equipment of which is second to none in the world.

With us, a metallurgist laboratory is not merely a plaything or a place through which to show visitors, but it is one of the vital essentials in the manufacture of Maxwell motor cars and trucks.

We do not depend for the quality of our materials on tests made in the steel mills, but every batch of steel or other metal received is rigidly tested in our own laboratories.

No chance or guess work enters into the design or construction of the Maxwell product.

When a part is designed, the specifications by which that part is to be made and the various heat treating processes through which that material is to pass, are determined by the most exhaustive experiments.

Ordinary steels find no place in the Maxwell product.

Almost every major part is made of a different alloy or passes through a different form of treatment to produce in it those qualities requisite to perform its own particular function.

The long life and low operation cost of Maxwell motor cars is determined even more in the laboratory than in the factory.



MAXWELL MOTOR COMPANY Inc.
DETROIT, MICH.

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Another Maxwell Factory

Chalmers Plant

Plant No. 2—Chalmers Plant

As everybody in the automobile business knows, the Chalmers factory and product, some months ago, came under the control of the Maxwell executives and organization.

The plant shown herein is familiar to all automobile dealers and manufacturers as the famous Chalmers plant of Detroit.

This factory has a floor space of 884,271 square feet, and here all parts of the Chalmers automobile are made, the car itself assembled and tested.

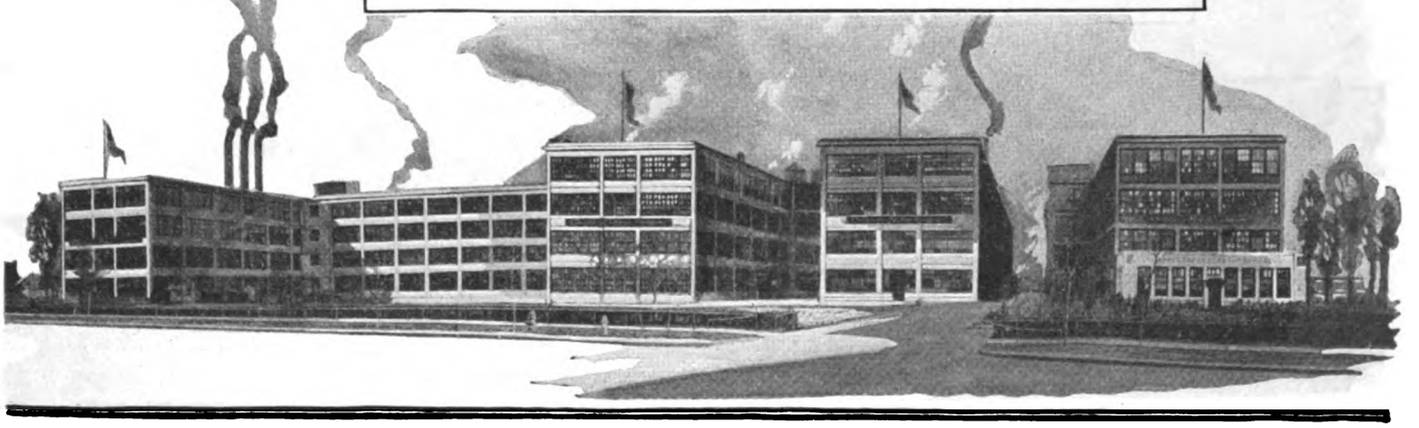
This is one of the most complete and one of the best equipped plants in the entire automobile industry, and the quality of the Chalmers product itself is the best evidence of the work done here.

In all fundamentals of design we found, when we took it over, that the Chalmers was a great automobile. It only needed a few refinements of details, a little closer attention to inspection, to become one of the really great motor cars.

The sales records are the best testimonial to its popularity and that, in turn, to its quality.

As in all the other Maxwell factories shown herein, a large amount of Government work is being done at this plant which necessarily called for reduction in our schedules for the coming year, but we hope to be able to continue manufacturing steadily although on a smaller scale.

Owing to the fact that this plant was nearer the center of the city and more accessible to distributors and dealers, the executive and sales offices of the Maxwell Motor Company are located here.



MAXWELL MOTOR COMPANY Inc.
DETROIT, MICH.

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Another Maxwell Factory

Canadian Plant

Located at Windsor, Ontario, directly across the Detroit River from Detroit, is the plant where Maxwell motor cars are made for Canada and other British possessions.

This plant, although not quite so large as the American factories, is just as complete in equipment as the others.

For example, a battery of dynamometers test the motors for power.

Your Canadian buyer is particular as is indicated by the fact that only a few of all American made cars enjoy any considerable business there.

Maxwell does the second largest business in Canada, as nearly as we can ascertain, the first being—well not exactly in the Maxwell class.

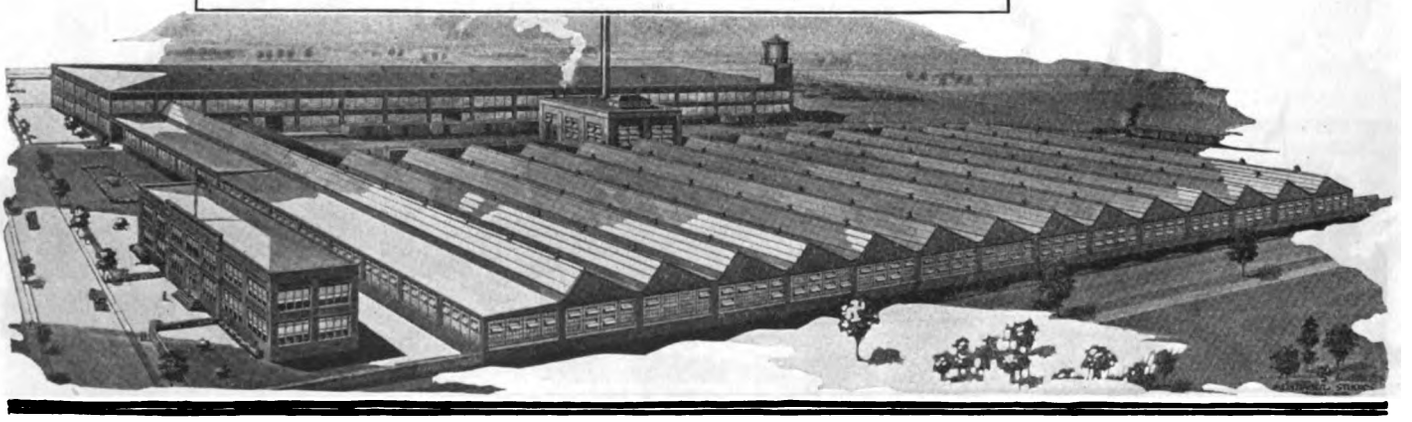
Maxwell popularity in Canada is due to the fact that it is designed along accepted standards and manufactured with the utmost precision and care.

And that brings us to a point we always like to emphasize in speaking of the Maxwell product.

We have never attempted to invent anything radically new, nor to try out experiments on our customers.

From the very first the policy of the Maxwell Motor Company has been to adhere to standardized units and, instead of trying to develop something radically new, concentrate all our thought to making those standard units better.

There is nothing new in a Maxwell motor car. From motor through the clutch, transmission, axles, steering gear and all other units, it is designed and built along accepted lines and in detail, as well as in the whole, represents the best there is of standard products.



MAXWELL MOTOR COMPANY Inc.
DETROIT, MICH.

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Another Maxwell Factory

Dayton Plant No. 1

In this plant all Maxwell bodies are built.

To those who have been in the automobile industry a long time, that statement carries much of significance.

All old time dealers will recall the Stoddard Dayton cars with their wonderfully well built bodies, and when we say that those bodies were all built in this plant, you will readily understand that not only is the equipment here of the best, but the workmen the most skilled in bodycraft.

With a floor area of 282,425 square feet, we have ample room for the making of sheet metal stampings, turning out mill work and doing the finishing, upholstering and painting.

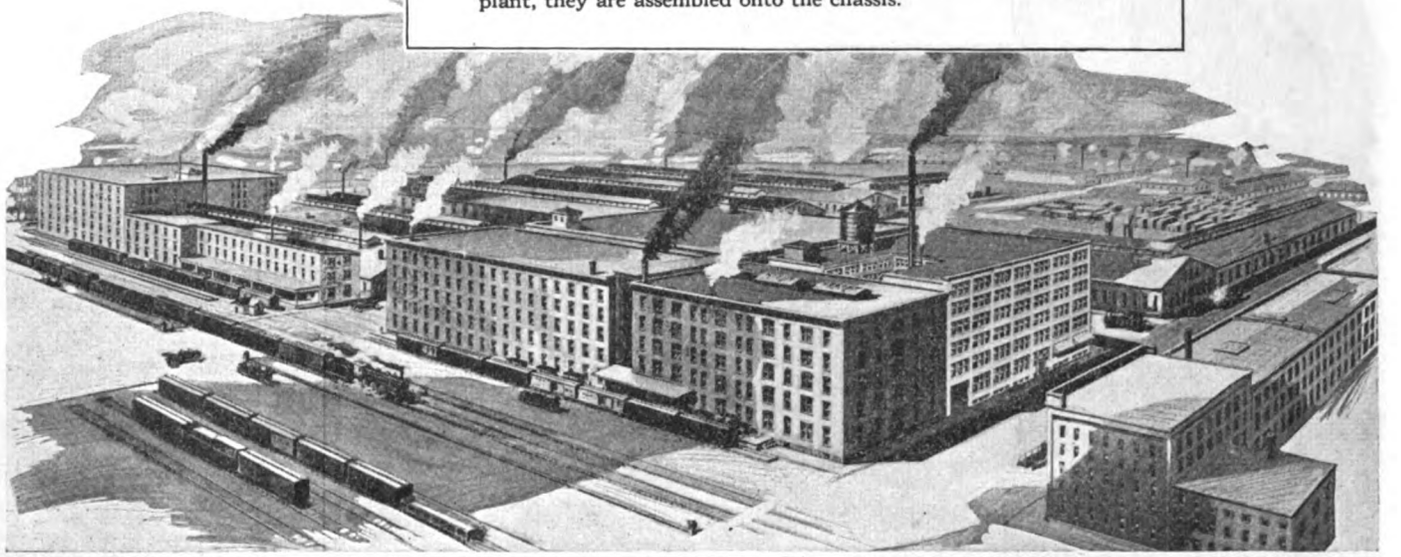
If we were permitted to tell the amount of work we are doing here on aircraft construction, you would have a more comprehensive idea of Uncle Sam's plans and of the present scale of operations in that direction.

It just happened that automobile body builders were splendidly equipped in experience, in machines and with workmen to turn out the wood and fabric parts of airplanes.

Always anxious to do its part, the Maxwell Motor Company was one of the first to offer as much of its facilities as Uncle Sam might require for this purpose.

The quality of Maxwell bodies—and they are noted for their staunchness and for the durability of finish—is due to the fact that we make them right here in our own plant and under our own supervision and inspection.

From here they are shipped to Detroit where, at the Oakland plant, they are assembled onto the chassis.



MAXWELL MOTOR COMPANY Inc.
DETROIT, MICH.

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Another Maxwell Factory

Dayton Plant No. 2

For convenience sake, we call this plant No. 2 but, as a matter of fact, there are crowded on this space two distinct plants which we call, within our own organization, "Dayton Plants Nos. 2 and 3."

There is a plant No. 4 also a short distance from this one of which, however, we have no photograph at this time.

The floor area of the latter is 45,000 square feet.

Here is one of the best foundries in the United States.

Cylinder and piston castings call for the best work of the foundryman, and until we made our own pistons we could not get the quality we desired.

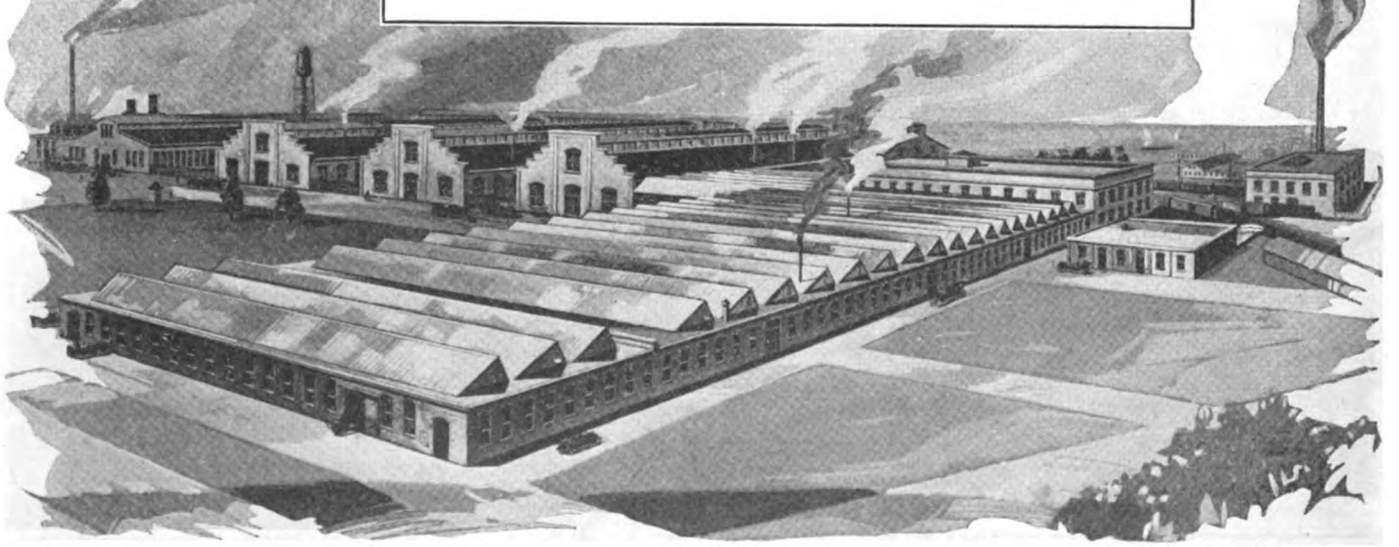
So accurate is the work in this plant, our discards, due to imperfections in the casting, constitute a very small percentage of the total.

This in itself is a guarantee of quality to the buyer.

Here also are great batteries of heat treating furnaces.

All castings are annealed before machining to relieve them of stresses and to obviate the possibility of cylinder or piston casting distorting under heat in operation.

Every plan that science could devise; and every precaution that experience could dictate, is exercised here to the end that every Maxwell shall be as nearly perfect as is humanly possible.



MAXWELL MOTOR COMPANY Inc.
DETROIT, MICH.

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Another Maxwell Factory

Briscoe Plant

Several years now since the Briscoe Motor Company occupied this plant, but it is still familiarly known as such in the trade.

It is located on Woodward Avenue, Detroit, just two blocks off Grand Boulevard, and while not as large as some of the others, a tremendous amount of work is turned out here.

We have said that every part of the Maxwell car is manufactured in our own plants.

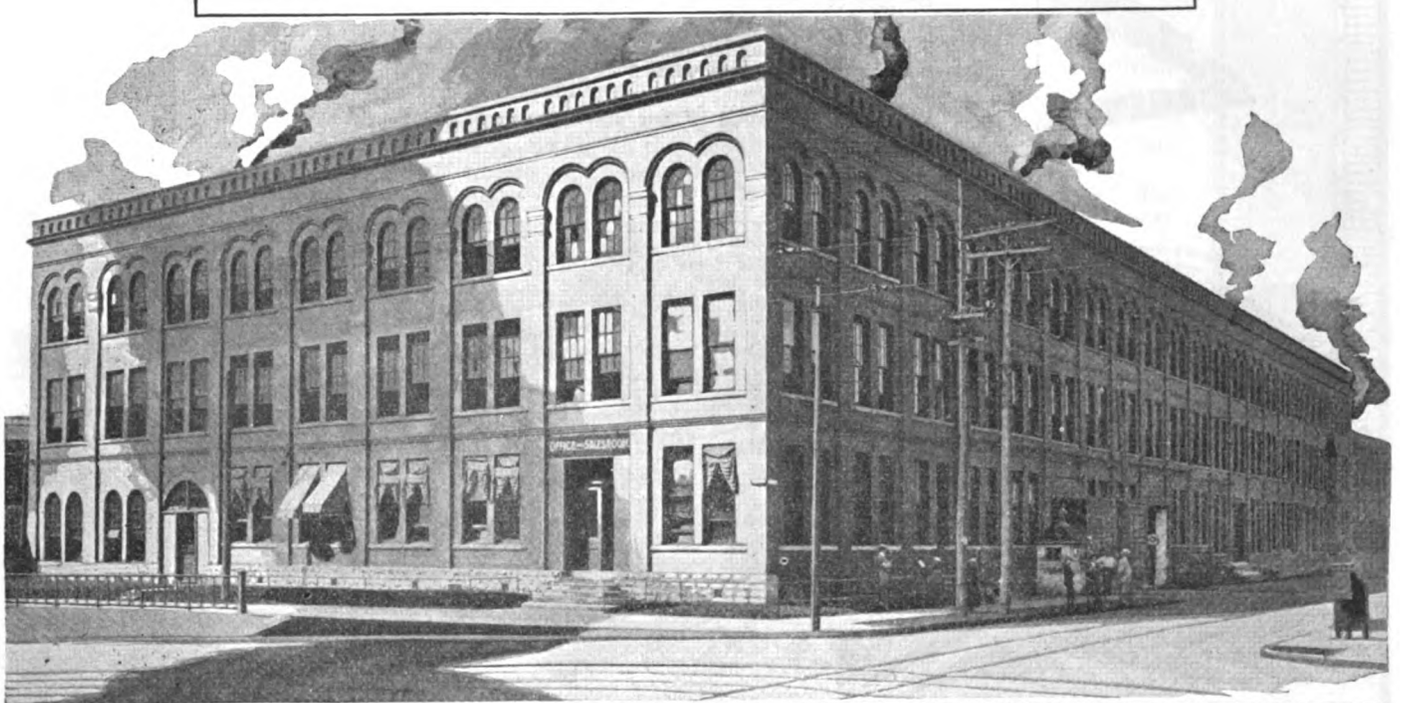
Many concerns who make that statement resort to a mental reservation when it comes to speaking of fenders, radiators, hoods, gas tanks, etc.

In our case this is not necessary because those important parts are all made in the "Briscoe Plant."

This was one of the first plants in the world to make stamped steel parts. From time to time the equipment has been improved as the science of steel stamping has developed until today there is no plant in the industry that turns out finer work or can attempt more difficult feats of stamping than are possible in this Maxwell factory.

Of course this plant does its quota of Government work too, although for obvious reasons we are unable to state here precisely what that work is.

Suffice it to say that the ingenuity of the Maxwell organization, the skill of Maxwell workmen and the precision of Maxwell machines have been brought into play to accomplish things that only a short time ago were considered impossible.



MAXWELL MOTOR COMPANY Inc.
DETROIT, MICH.

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Another Maxwell Factory

Newcastle Plant

Situated in the little town of Newcastle, Indiana, where we are able to draw upon the great farm districts for young men and train them into expert machinists, our facilities for turning out good work are exceptional.

This is one of the largest of the Maxwell plants, having a floor area of nearly half a million square feet.

Because of its distance from Detroit, we maintain here, as well as at that point, a large laboratory for analytical work and the testing of metals.

Machines for determining the static and dynamic qualities of steel, torsional tests, etc., are here employed to determine the quality of every part in order that we may back it with the Maxwell guarantee.

The drop forging equipment at this plant is one of the finest in the world—and one of the biggest.

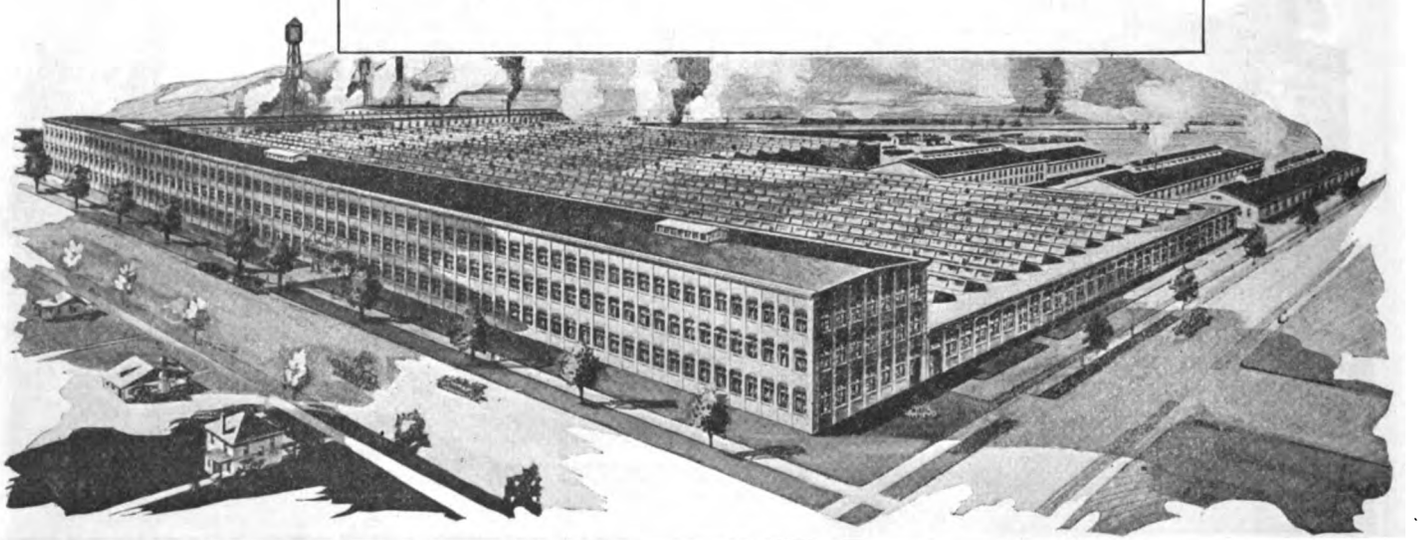
Here all drop forgings for the Maxwell car are made.

Also a very large percentage of automatically machined parts for transmission, axles, steering gear and other units are made in the Newcastle plant.

Because of its central location, we also handle all of the Maxwell service from this point.

Fully 50% of Maxwell owners can be furnished with replacement parts within 24 hours, while 50% of that, in turn, are within the 12 hour radius.

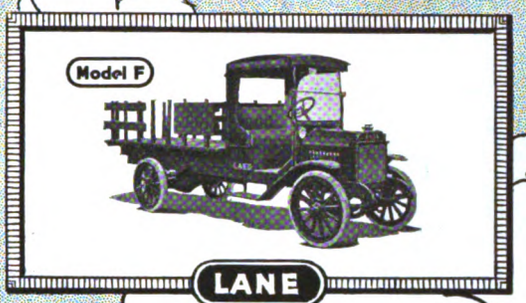
We are rather proud of our service system and consider it is second to none.

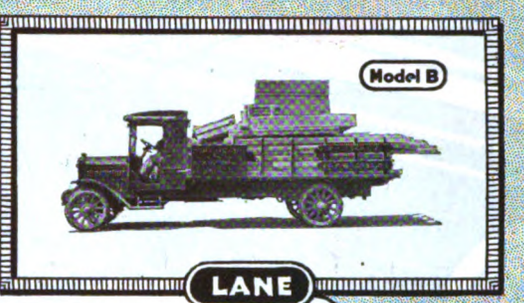


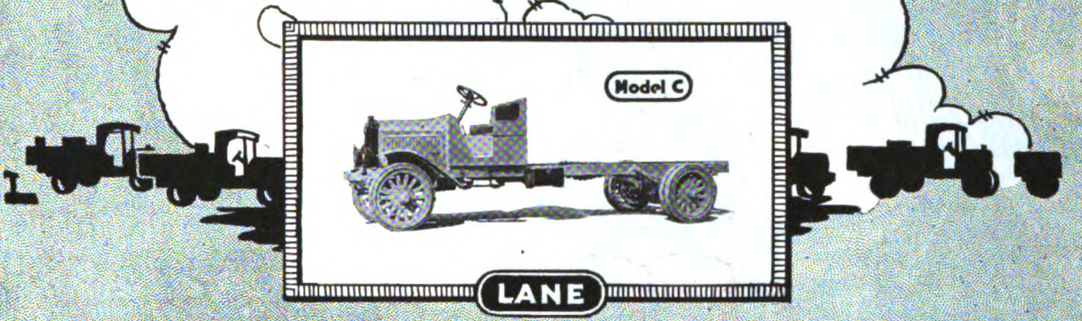
MAXWELL MOTOR COMPANY Inc.
DETROIT, MICH.

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THESE TRUCKS







Will Put Ginger in Your Business

TODAY there is probably not a single automobile dealer in the United States able to obtain all the pleasure cars he can sell, and that condition is as certain to maintain until the end of the war, as that night follows the day.

But, on the other hand, owing to the emergencies of the titanic transportation problem, to which the modern truck has proven a veritable Godsend, it is equally certain that the government will interfere as little as possible with truck production.

And of all trucks there are none better than the LANE, for either dealer or customer.

In the first place LANE trucks are superior trucks—the best trucks in their capacity class ever made at any price: built on honor from the ground up and complete in every detail of construction and equipment, including standard electric lighting and starting systems, Continental motors, Timken axles, Goodrich DeLuxe tires, etc.

That's why LANE trucks sell easily in the face of any competition, and, once sold—stay sold, and sell others.

Then the LANE agency agreement carries an exceptionally liberal dealer's discount. ¶ Besides, it's plain, straightforward and easy to comply with.

You will find it greatly to your own advantage to tie up the LANE truck line for your territory. ¶ Act today before your competitor slides in ahead of you.

Send in the coupon now. ¶ It will be a pleasure to forward you full details of our sales proposition and, the super-merit of the LANE truck specifications will prove a genuine surprise to you.

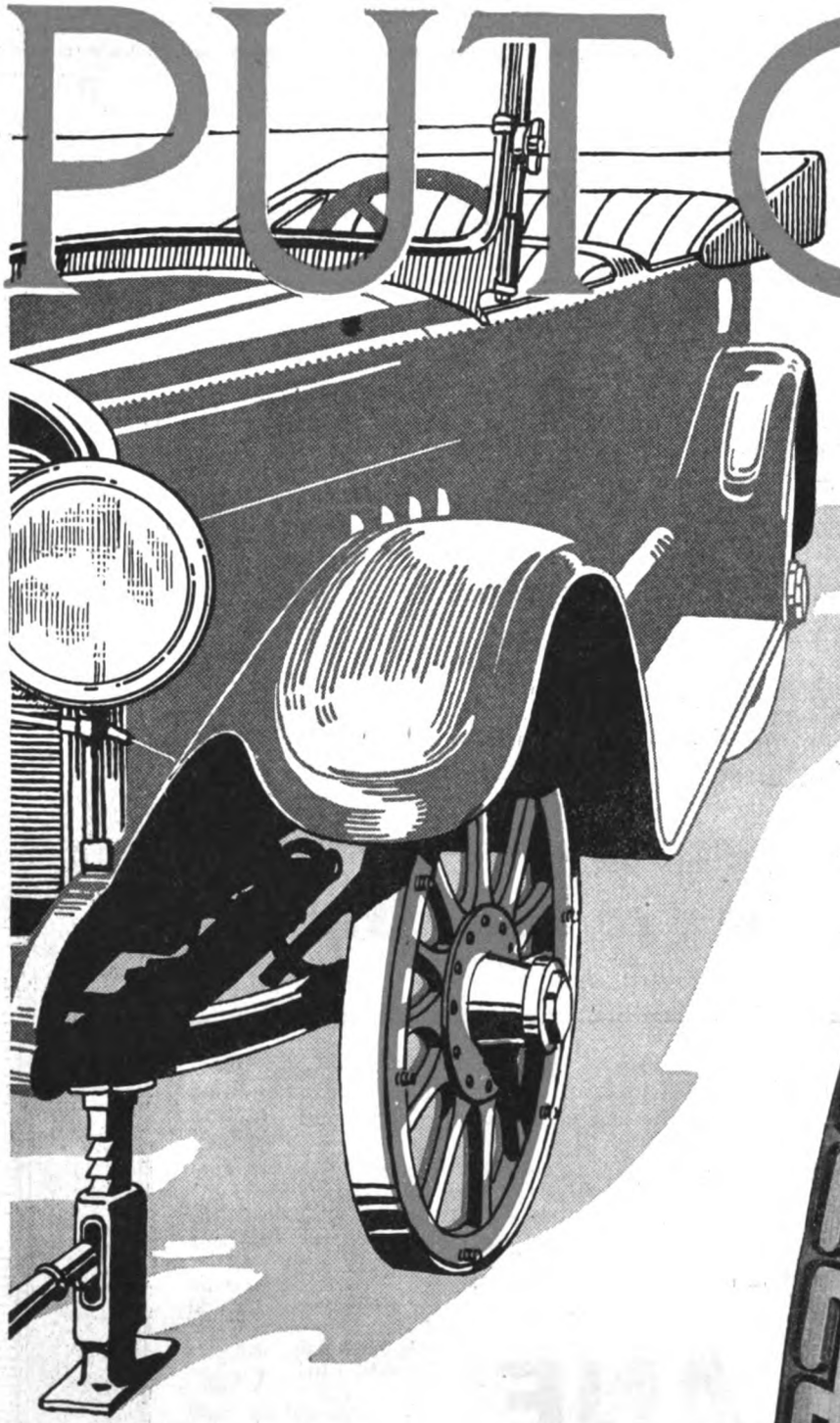
LANE

THE LANE MOTOR TRUCK COMPANY
Kalamazoo, Michigan, U. S. A.

THIS COUPON FOR YOUR CONVENIENCE
The Lane Motor Truck Co., Dept. E,
Kalamazoo, Mich.
Please send me complete specifications of the Lane trucks and Dealers' proposition.
Name .....
Address .....

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PUT ON





"ALL works of quality must bear a price in proportion to the skill, time, expense and risk attending their invention and manufacture. Those things called dear are, when justly estimated, the cheapest. A composition for cheapness and not for excellence of workmanship is the most frequent and certain cause of the rapid decay and entire destruction of arts and manufactures."

RUSKIN.

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the INDIA

Built for the Man Who Wants the Best

— made By Hand to excel all existing tires in low cost per mile, and in freedom from trouble;

— produced by a group of experienced and successful tire men having both the determination and the practical knowledge necessary to combine the best Wear and Service features in one tire—the INDIA;

— a thoroughly tried and proven tire you can recommend to your most exacting trade without being afraid of results, and a tire that keeps on re-selling itself;

— made with Non-Skid and Ribbed treads, both types guaranteed on a basis of 5000 miles.



Get Our Distributors' Exclusive Territory Proposition

The India Tire & Rubber Co.
Akron, Ohio

Digitized by Google

Greater Profit—
and
a Lasting Business

Gross on the sale of one Lalley-Light is greater than that from the sale of a $600 automobile—even if you could get the automobile.

But the larger and more attractive aspect of Lalley-Light is the permanence of the business.

Take on Lalley-Light now as a substitute for motor cars, if you like.

You will very soon realize its possibilities as the foundation for both increased profits and permanence.

Write at once or wire for details.

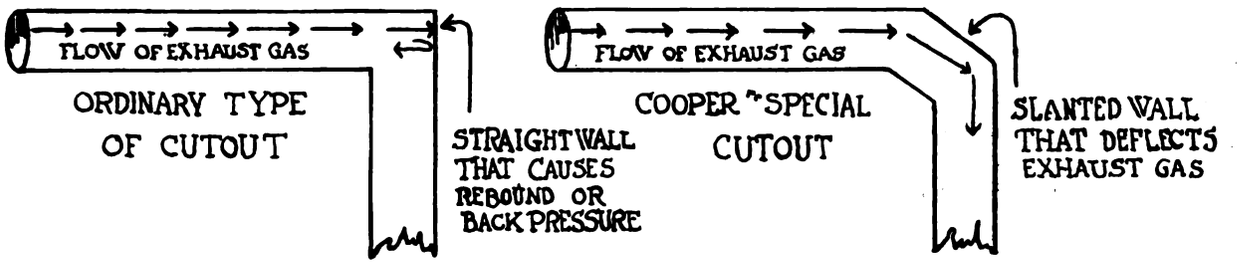
Lalley Electro-Lighting Corporation
1826 Mt. Elliott Avenue, Detroit, Michigan

LALLEY-LIGHT
"Always runs and runs right"

When writing advertisers please mention Motor World—it identifies you.

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ALL BACK PRESSURE IS ELIMINATED IN THE COOPER "SPECIAL" CUTOUT



The above designs show why there can be no back pressure in the Cooper "Special" Cut-out. Instead of coming in contact with a straight, perpendicular wall which will naturally cause a rebound, the gas comes in contact with a *slanted* wall which deflects the gas. This is the secret of the tremendous success of Cooper "Special" Cut-out.



"COOPER SPECIAL"

The construction and principle of the Cooper "Special" will appeal to the judgment of the man who ***knows*** what a good cut-out should be like.

—The slanted flapper and large exhaust opening prevent back pressure.

—The exhaust pipe is not cut in two to accommodate this cut-out.

—The flapper is opened three inches by pushing the foot pedal down one-half inch.

—The lock on the foot pedal works instantly and never fails.

The Cooper "Special" Cut-Out (for all makes of cars) does its work in a simple, efficient manner and never gives the least trouble.

Dealers—Get a stock from your jobber—get the benefit of our extensive advertising.

	No. 3 Pedal	"O" Pedal
1½" Outfits with	$2.50	$3.00
1¾" and 1⅞" Outfits with	3.00	3.50
2" and 2⅛" Outfits with	3.50	4.00
2¼" and 2½" Outfits with	4.00	4.50



Pedal No. 3

COOPER MFG. COMPANY, Marshalltown, Iowa

Exclusive Sales Representative

THE FULTON COMPANY, MILWAUKEE, WISCONSIN

I enclose $....., for which please send me ..... "Cooper Special" to fit my make of car ..... Size of exhaust pipe is.....
I buy my accessories from.....
Signed..... Address.....



Style O Pedal

Digitized by Google

The AC Line Is the Success Line; Grow With It. It Meets Best the Spark Plug Needs of Every Motorist. It Is Backed by National Advertising and the Judgment of Most Manufacturers.

With a complete line of AC Spark Plugs on your shelves you are prepared to meet best the requirements of every motorist that comes to your garage. Why tie up capital in slow-moving stock that has only extravagant claims to recommend it? Establish a reputation for handling only the best. That is the reputation that brings business to your doors.

With almost no exceptions, practically every fine car made is factory equipped with AC Spark Plugs. See for yourself in the list on opposite page. These plants chose AC's because in rigid laboratory and road tests, their superiority over all other makes was established beyond question.

And now that national advertising is carrying this truth broadcast, even the owners of those cars made by the few manufacturers who at present equip with other than AC Plugs are installing the plugs which we have specially designed for their cars.

By handling AC's exclusively, you are not limiting your market, for there are various types of AC Plugs specially designed for every make and style of motor. You are building a reputation for handling only highest quality merchandise. You are allying with success.

Write for complete information for dealers.

Champion Ignition Company, FLINT, *Michigan*

Digitized by Google

The Standard Spark Plug of America



All the well known manufacturers listed below use AC for standard factory equipment

Acme Trucks	Cole	Ford & Son Tractors	Kissel Kar	Nash	Reo	Stearns-Knight
Advance-Rumely Tractors	Continental Motors	F-W-D Trucks	La Crosse Tractors	National	Riker Trucks	Stephens
American-La France	Crane-Simplex	Gabriel Trucks	Lexington	Netco Trucks	Rock Falls	Sterling Motors
Anderson	Daniels	Genco Light	Liberty	Oakland	Rutenber Motors	Sterling Trucks
Apperson	Davis	G. M. C. Trucks	Locomobile	Old Reliable Trucks	Samson Tractors	Stewart Trucks
Brockway Trucks	Deere Tractors	Gramm-Bernstein Trucks	Marmon	Oldsmobile	Sandow Trucks	Stutz
Buffalo Motors	Delco-Light	Hall Trucks	Maytag	Oneida Trucks	Sanford	Titan Trucks
Buick	Diamond T Trucks	Hatfield	McFarlan	Packard	Saxon	United States Motor Trucks
Cadillac	Dodge Brothers	Haynes	McLaughlin (Canada)	Paige	Scripps-Booth	Wallis Tractors
J. I. Case	Dorris	Hudson	Menominee (Trucks)	Paterson	Seagrove Fire Trucks	Waukesha Motors
Chalmers	Dort	Hupmobile	Moline-Knight	Peerless	Signal Trucks	Westcott
Chandler	Duesenberg Motors	Jackson	Moreland Trucks	Pierce-Arrow	Singer	White
Chevrolet	Federal Trucks	Jordan	Murray	Pilot	Smith Motor Wheel	Wilcox Trux
		Jumbo Trucks		Premier		Wisconsin Motors

When writing advertisers please mention Motor World—it identifies you.

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The telephone company has just printed a list of men who are going to buy Maxwell trucks

Open the directory and pick out the "butchers and bakers and candle-stick-makers"—get the Maxwell truck agency; bring 'em 'round for a "once-over"—have your order blank handy—say "sign here" and begin to figure your excess profits tax.

Here's a truck with the guts and go of $5000 kinds: worm drive—electric lights and generator—ten-foot loading space—a gas and tire miser and a mile glutton. Retails at $1085—several hundred dollars less than any other truck of similar capacity on the market.

Sherlock Holmes, the balance sheet, has discovered that over-sized, unnecessarily heavy, three- and five-ton trucks are bad buys; they carry too many half loads—eat their heads off and make the repair shops rich.

Land the Maxwell for your territory and learn what real money-making means—sight sales—net profits—repeat orders and no come-backs. The mails are uncertain nowadays—telegraph "Yes" before the "other man" beats you to it.

MAXWELL MOTOR COMPANY, Inc., DETROIT, MICH.

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Motorists' Want HAVOLINE OIL

REG. U.S. PAT. OFF.

YES, they do—perhaps they don't ask for it—but you will see that they do want it, if you show them that you have it.

You are like that yourself. You don't always ask for advertised articles by name but you always take the kind that you know about or have heard of.

To help you sell Havoline Oil we have been telling motorists all over the country about Havoline Oil in the Saturday Evening Post, Literary Digest, and other magazines reaching millions. We have been doing this for years until the name Havoline is familiar to everybody.

We have taken those millions of interested readers under the hoods of their cars and shown them things as they are—the 2200 plunges of the piston per minute—the 3000 degrees of heat in the combustion chamber and the 400 degrees on the cylinder walls that cause any except the very best oil to break down.

We have shown these millions the need of the perfect protecting film of Havoline Oil in advertisements full of interest, conviction and selling force.

Why not identify yourself with an absolutely uniform and never-quitting oil while our arguments are fresh in motorists' minds?

Havoline banners, cards, window displays and all kinds of printed material are at your disposal to bring home to you cash returns for the money we have spent.

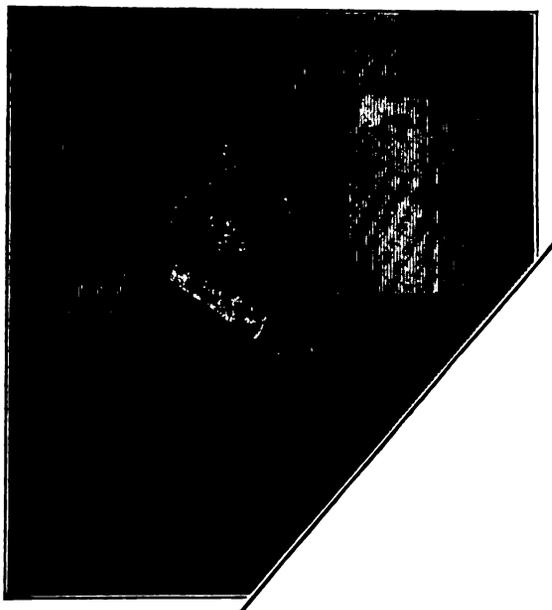
Indian Refining Co. Incorporated *Producers and Refiners of Petroleum* New York

HAVOLINE OIL

REG. U.S. PAT. OFF.

"It makes a difference"

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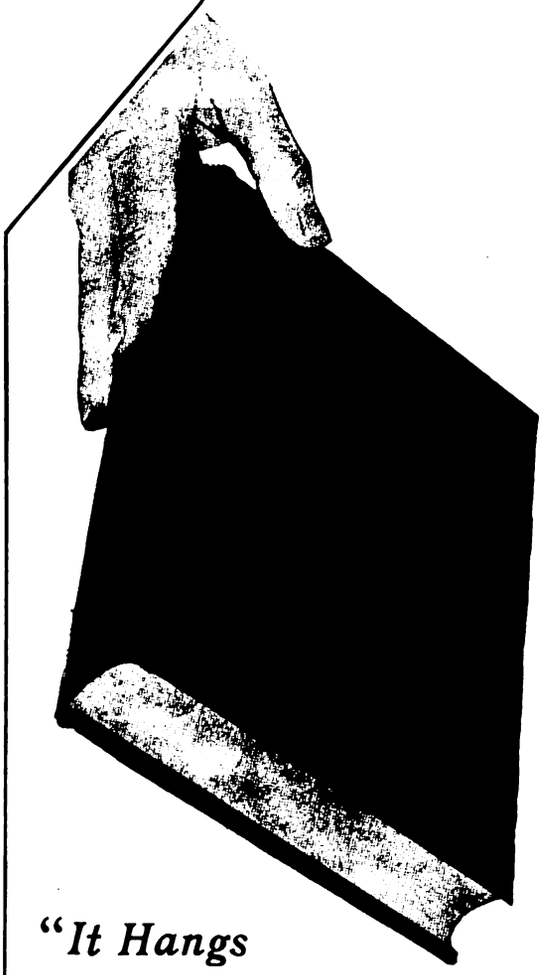
C. D. PETTINGELL

THIS MAN, Buyer for a Florida Jobber

SAYS:—

"The Automobile Trade Directory is my most valued helper. It's a well thumbed volume and I couldn't get along without it."

PURCHASING AGENT
THE G. NORMAN BAUGHMAN COMPANY



"It Hangs Everywhere"

Your sales depend upon (1) your knowledge of what your customers want and (2) your ability to supply them promptly. But—

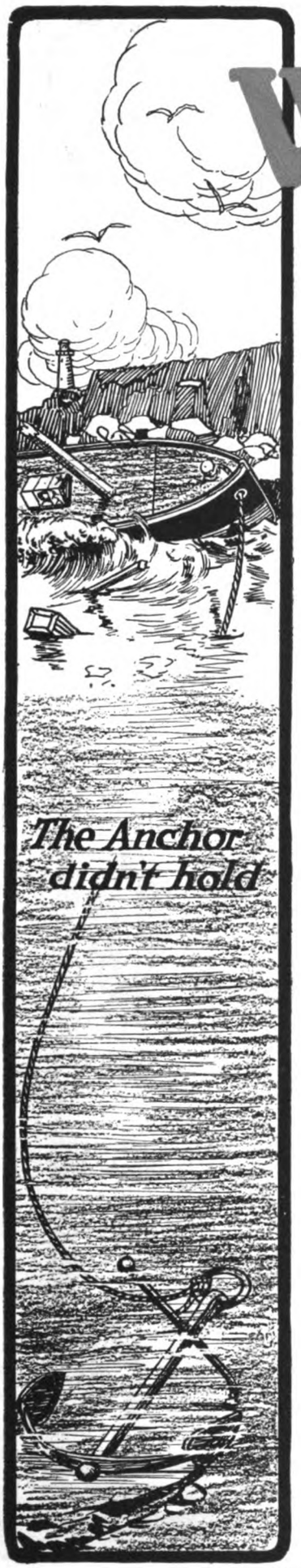
Like Mr. Pettingell, you cannot stock everything that is manufactured.

From "Lamp Bulbs" to "Complete Starting and Lighting Systems," your copy of the "Red Directory" tells you who the manufacturers are —and gives you a vast amount of catalog information besides. Make it your most valued helper too.

THE AUTOMOBILE TRADE DIRECTORY
ROBERT WOLFERS, President
243 WEST 39th STREET
NEW YORK CITY

A THOUSAND CATALOGS IN ONE

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WRECKS

WHAT the anchor is to a ship, brake lining is to a motor car. Month after month the anchor may hang idle, uncalled upon to meet any emergency. Then comes the test—lives—property—part of the success of our boys abroad—depends on whether the anchor holds or drags.

Think what depends on the brake lining you use! Think how it stands between your customers and accident—not at rare intervals but dozens of times every day. Think of the responsibility that rests on **you.** Don't take chances on cheap, unknown brands of lining—use the best—back your good workmanship with

GARCO BRAKE LINING

Solidly woven from high-grade, long-fibre asbestos; each foot re-enforced by dozens of interwoven brass wires, GARCO can but resist wear through thousands of miles of the hardest kind of service. And down to the last fraction of an inch it is bound to hold with bull-dog grip. Grease, water, oil or dirt on the brake drums cannot affect its grip. The GARCO Chemical Solution takes care of that.

There's profit for you in every foot of Garco Brake Lining. Ask your jobber for prices or write us direct. The Garco Selling Helps pull business for Garco Dealers every day in the year. They are all furnished free. Investigate now.

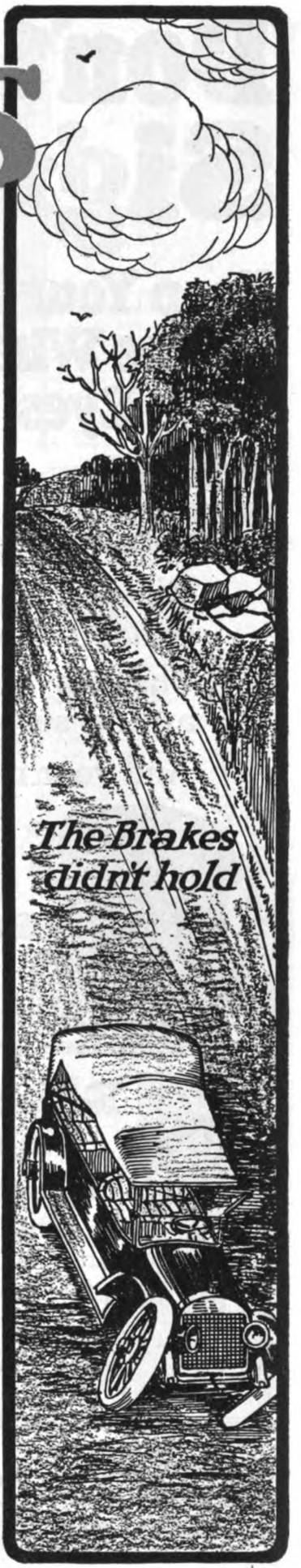
TRADE GARCO MARK

General Asbestos & Rubber Co.

Main Offices and Factories: CHARLESTON, S. C.

Branches and Complete Stock :: 58 Warren Street, New York
106 West Lake Street, Chicago :: 311 Water Street, Pittsburgh

The Largest Manufacturers of Asbestos Textile Products in the World



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Don't Reach to Signal

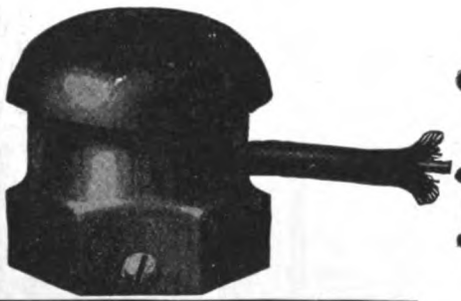
Keep Your Hands on the Wheel and Your Eyes on the Road—



When there's danger ahead—you need that warning signal instantly!

There is no time to grope for the signal button there are no seconds to lose!

And your hands should stay on the wheel.



The HANDY Push Button 50¢

FORD TYPE (In Canada 75c)



The Handy Push Button comes in this attractive box for the convenienec of our dealers.

makes it possible to sound your signal as quickly as you can think. It is always right on the steering wheel, under your hand—always ready for instant action.

Everywhere Ford Owners are buying the Handy on sight, and everywhere Handy Dealers find that here is the fastest selling accessory on the market.

A slight change in wiring makes the Handy Push Button adaptable for Chevrolet, Dodge and Maxwell cars. Complete directions on package.

Dealers: Get Your share of the sales of Handy Push Buttons. Write for full information and Liberal proposition.

The Francis-Rand Company
Dept. 203-A, Cleveland, Ohio

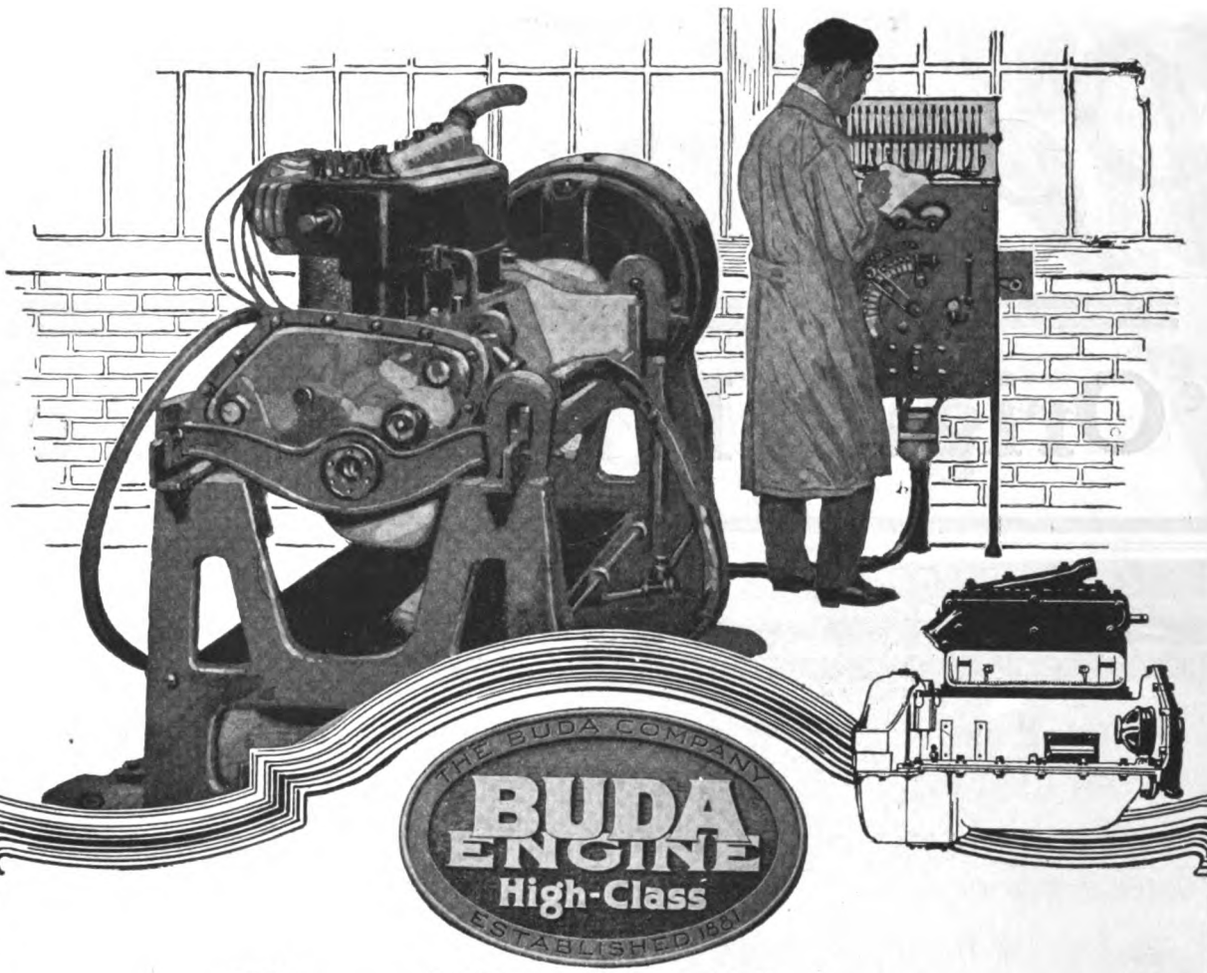
MANUFACTURERS OF

Handy Products

TRADE MARK

When writing advertisers please mention Motor World—it identifies you.

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Five Times Tested -and Proved!

The smoothness in action and remarkable durability of the BUDA ENGINE are the results of the finest manufacture. They are safeguarded by tests of each engine which, we believe, are of unequaled severity.

1st, each engine is run by outside power until smooth. 2nd, it is run by its own power until smooth. 3rd, it is taken apart, examined and carefully adjusted. 4th, it is run under its own power. 5th, when it runs with perfection, its power output is measured by the electric dynamometer.

The engines which survive all these tests are real BUDA ENGINES for trucks, farm tractors, or high duty stationary work.

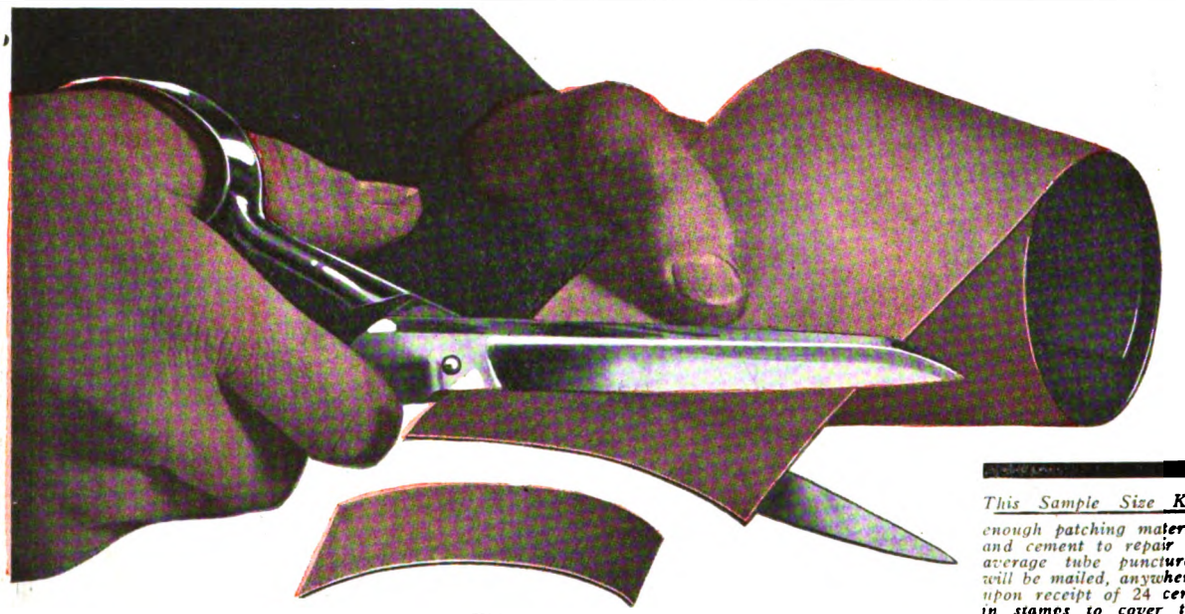
Made by The BUDA COMPANY, Harvey (Chicago Suburb), Ill.

THE BUDA ENGINE
"HIGH CLASS"

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Perma-Loc

The Original 3-Ply Patch



To Repair a Damaged Tube Economically and Permanently

DON'T use a "temporary" patch to repair a punctured or blown-out tube while you race to the nearest garage.

Use a PERMA-LOC self-vulcanizing patch and make a *permanent* repair. Just cut off a strip of PERMA-LOC of a size to fit the hole, apply a bit of PERMA-LOC Cement, press the patch firmly to the tube and you'll have a thoroughly sound repair that will *hold forever*. You can inflate the tube to full pressure, and use it, the minute you've applied the patch. The harder you drive, the more firmly you vulcanize PERMA-LOC to the tube. It will never creep or loosen!

To insure yourself against trouble and delay, stop at your dealer's today and secure a PERMA-LOC kit for your tool box. *There's enough in one strip to repair a 17-inch blowout.* Obtainable in 3 sizes, 50c., $1.00 and $1.50, complete with cement. If your dealer cannot supply you, write direct.

PERMA-LOC MFG. CO.

309 Board of Trade Building

Factory—Wilkes-Barre, Penna. **Scranton, Penna.**

This Sample Size Kit, enough patching material and cement to repair 12 average tube punctures, will be mailed, anywhere, upon receipt of 24 cents in stamps to cover the cost of postage, shipping and containers.



Dealers

The unusual sales features of PERMA-LOC make it an attractive and profitable seller. You can talk economy and simplicity to good purpose. PERMA-LOC will back up your claims. Write to your jobber or to us for discounts and full details.

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The Springs
With the Extra Guarantee

When your customers come to you with broken springs—replace them with springs that you can stand back of—springs that you can depend upon to deliver perfect satisfaction.

GUARANTEED
TUTHILL
TITANIC
SPRINGS
LUBRICATED

are so strong, so well built, so perfectly constructed, that they are not only guaranteed at all points and in every respect for one year, but they are also guaranteed *forever* against center breakage—where three out of four old-fashioned springs break.

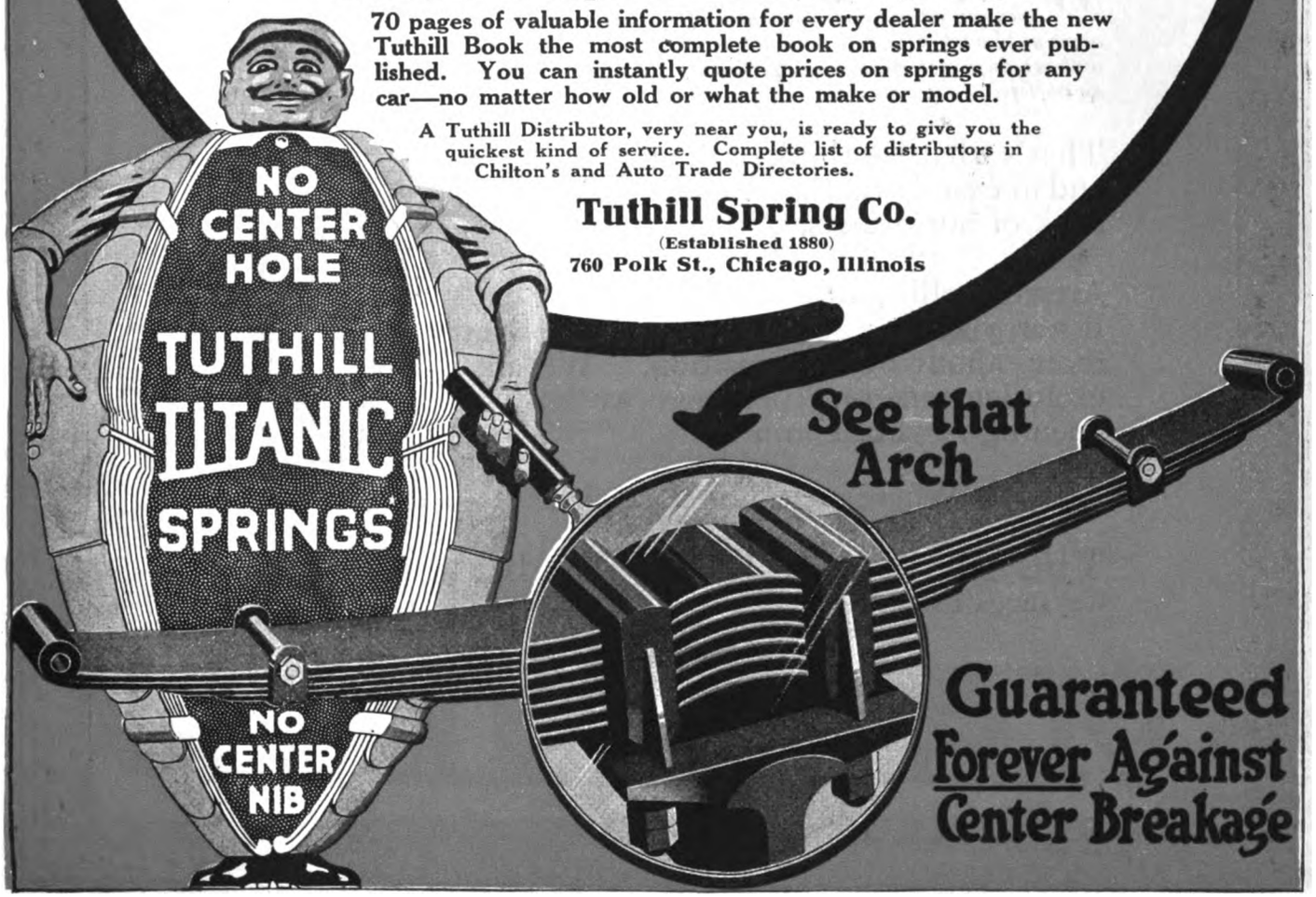
That is why more spring replacements are made with Tuthill Titanics than with all other makes combined. And that is why Tuthill dealers are always successful dealers.

Send for Complete Book on Springs

70 pages of valuable information for every dealer make the new Tuthill Book the most complete book on springs ever published. You can instantly quote prices on springs for any car—no matter how old or what the make or model.

A Tuthill Distributor, very near you, is ready to give you the quickest kind of service. Complete list of distributors in Chilton's and Auto Trade Directories.

Tuthill Spring Co.
(Established 1880)
760 Polk St., Chicago, Illinois



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MARATHON

How We Sell Marathon Hand Made Tires

A TIRE isn't just a tire with us. It's a whole lot more than so much rubber and fabric. Here is what we say in our advertising to users and prospective users of Marathons —

WE look upon Marathon Tires as our business representatives; we are willing to build our reputation on the satisfaction you get in using them; and your complaint made to us about a Marathon Tire that doesn't properly represent that spirit, will get as prompt attention as if you complained about the act of an employee of our company.



That's what we think of the tires we make and in exactly that same spirit do we stand back of our dealers.

Are you selling tires on such a basis today? If not, you may be interested in knowing more about our proposition. We allot exclusive territory; perhaps we have an opening in your community.

Where are you? Let's hear from you.

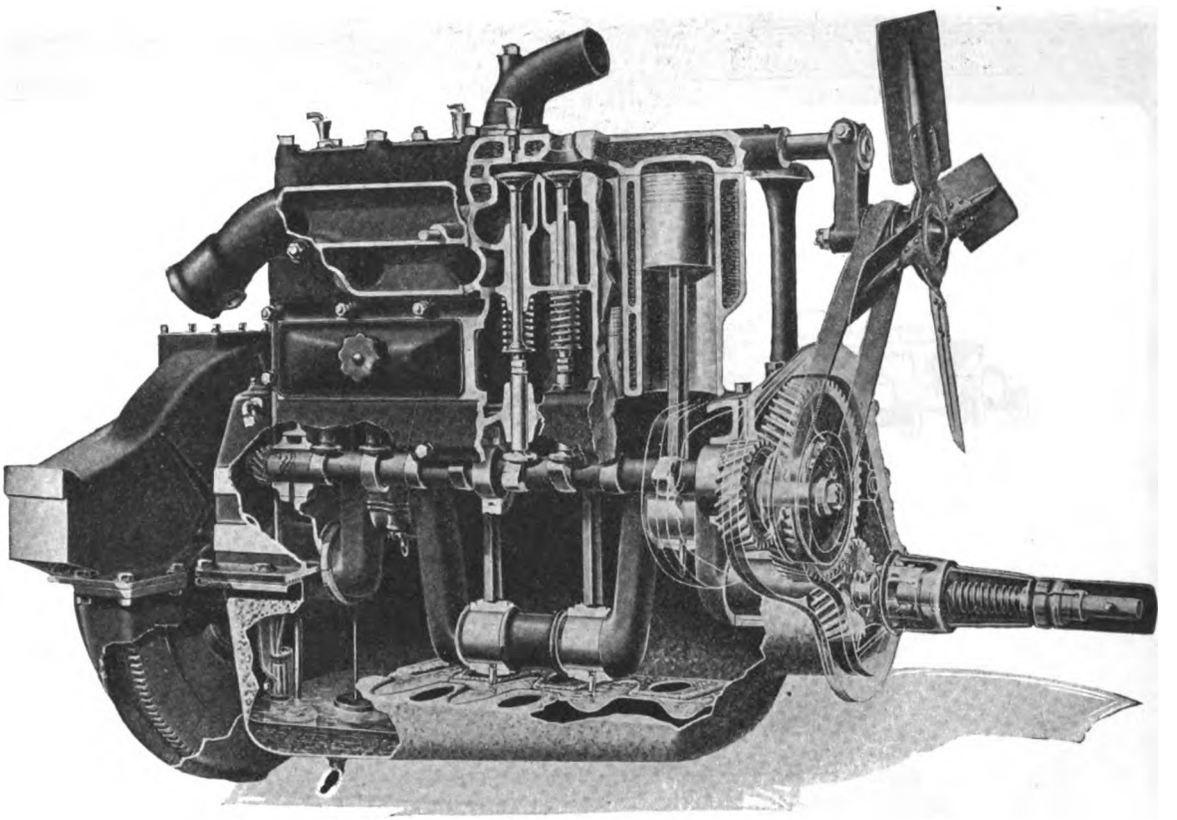
The Marathon Tire & Rubber Company

Cuyahoga Falls, Ohio . Canadian Factory, St. Catherines, Ontario

WAREHOUSES:

549 W. 52nd St., New York
200 S. Highland Ave., Pittsburgh
1458 S. Michigan Ave., Chicago
700 Beacon St., Boston
3434 Locust St., St. Louis
1809 Grand Ave., Kansas City
10213 Euclid Ave., Cleveland

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TREMENDOUS POWER

The SPILLMAN "4" weighs more than other fours. Its *cam*shaft is nearly as heavy as the *crank*shaft of some fours. This added weight gives it solidity, steadiness, freedom from vibration, allowing the development of much greater power and speed while retaining in full its flexible, smooth-running efficiency.

It has developed as high as 48 Brake-Horsepower.

For light commercial trucks—¾-ton, 1-ton 1½-ton capacity—the SPILLMAN "4" is without a rival.

HERSCHELL-SPILLMAN COMPANY

NORTH TONAWANDA NEW YORK

SPILLMAN 4

3¼ × 5 — 4 CYL

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BOWER SAVES POWER



Truck Owners Know the Value of Simplicity

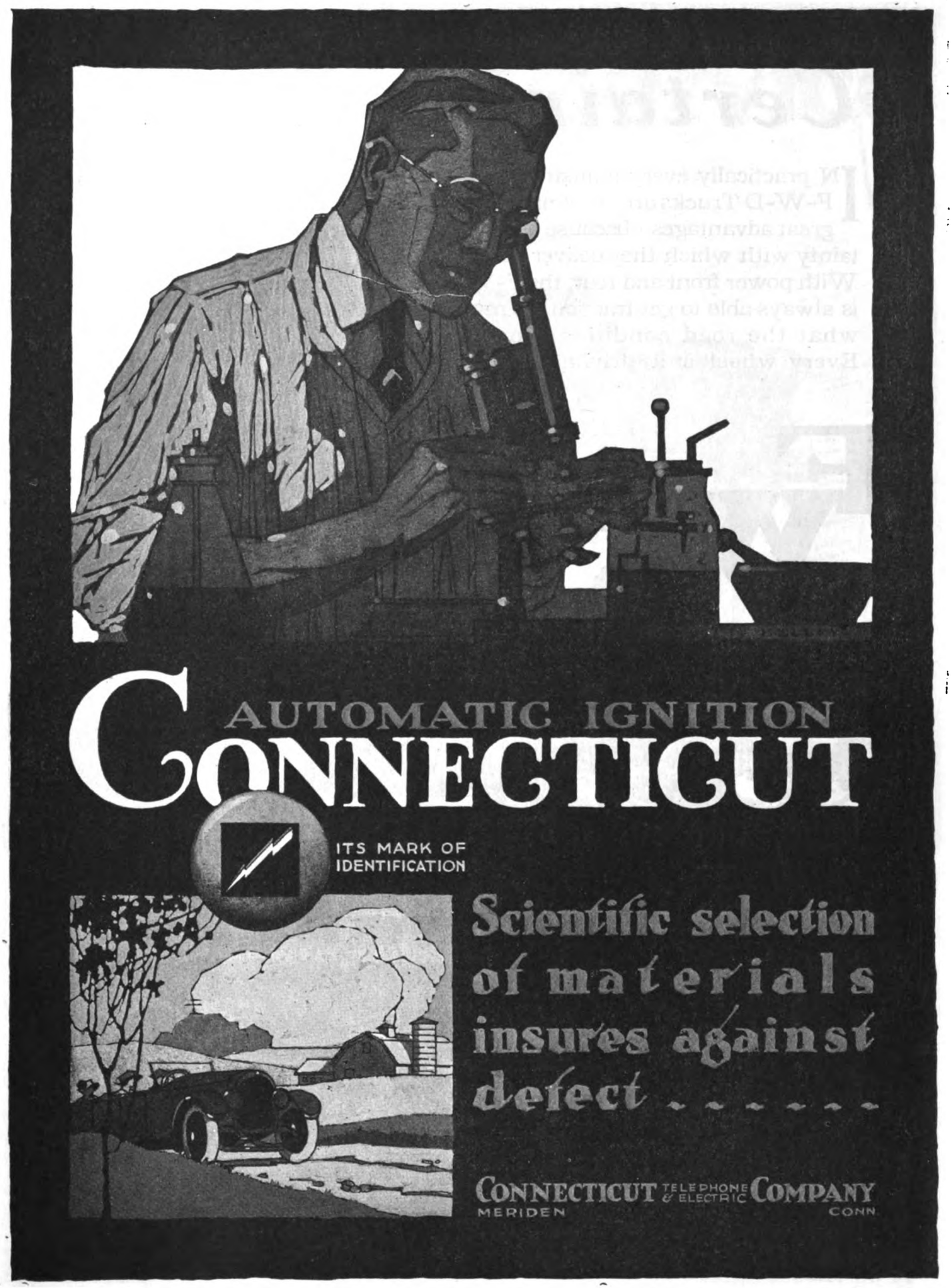
Bower Roller Bearings are of simple, yet scientific design. Consisting of a cylindrical roller with a flanged head at one end, this bearing reduces friction to the minimum. The constant heavy radial load is carried by the entire length of the roller. The side thrust is carried separately by the flange. Hence, the roller is self-aligning and always runs free.

Because of their simple trouble-proof construction and because Bower Bearings never need adjustment, they are prime favorites with truck owners.



BOWER
ROLLER BEARING CO.
Detroit Michigan

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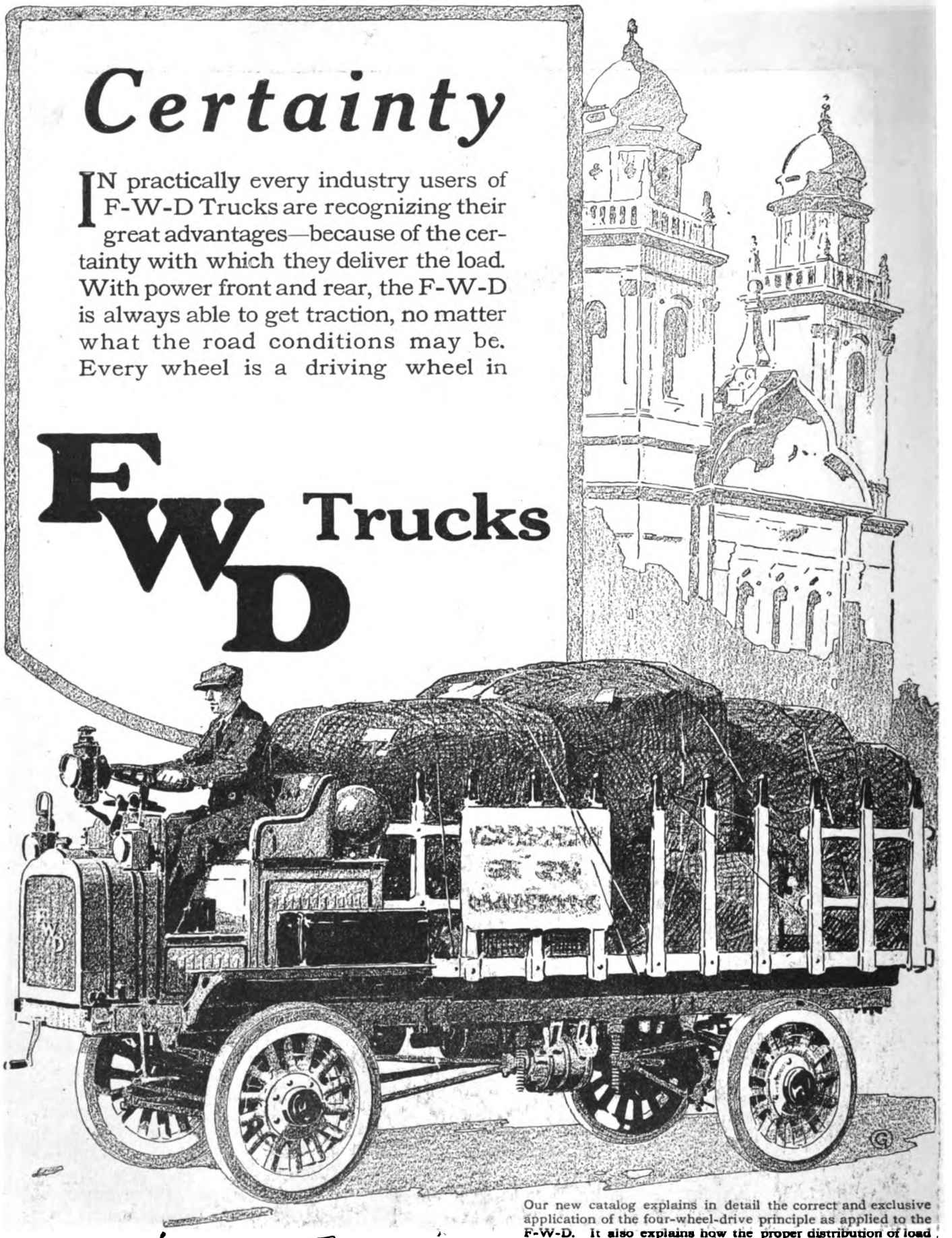


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Certainty

IN practically every industry users of F-W-D Trucks are recognizing their great advantages—because of the certainty with which they deliver the load. With power front and rear, the F-W-D is always able to get traction, no matter what the road conditions may be. Every wheel is a driving wheel in

F W D Trucks



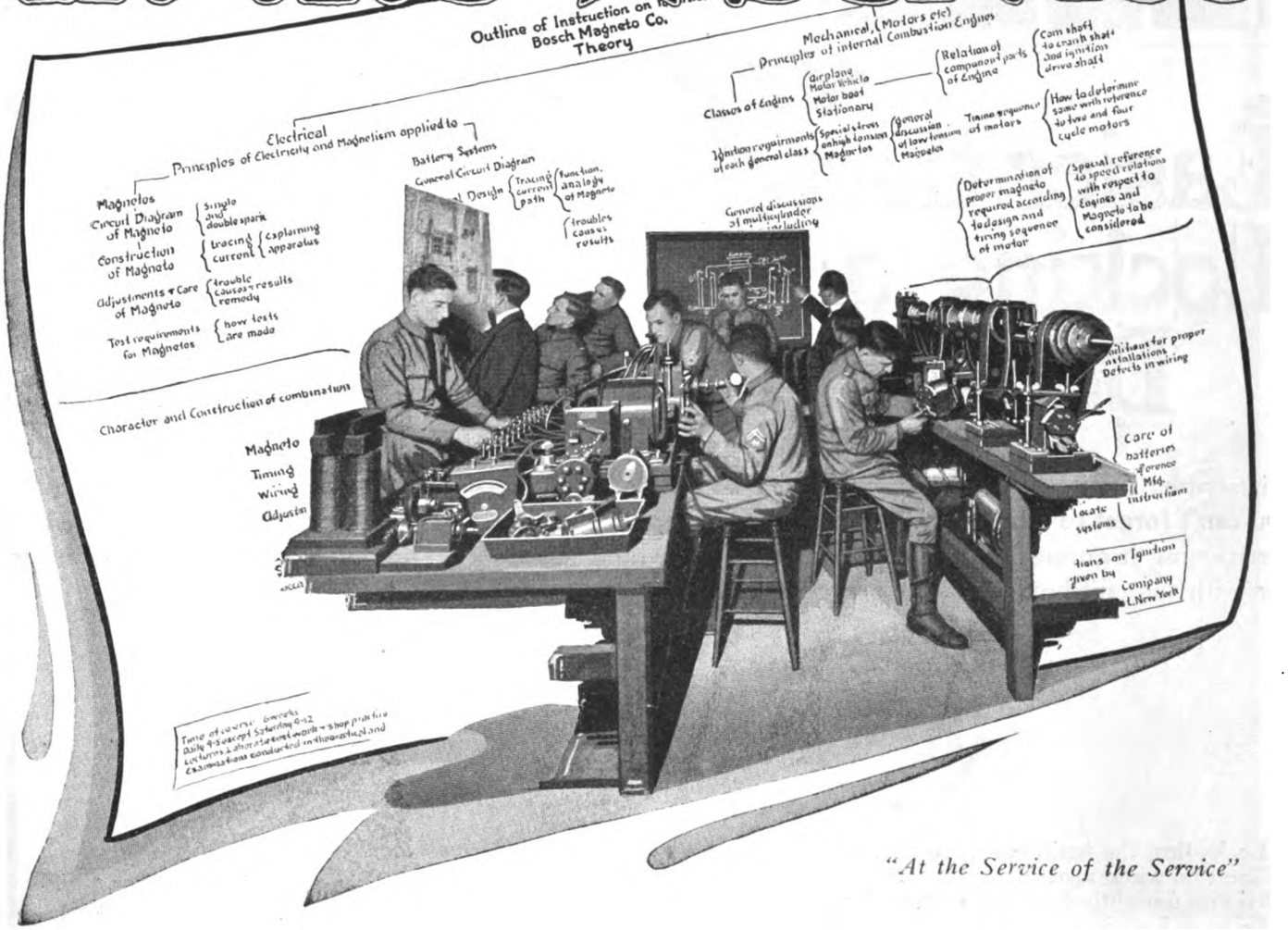
Our new catalog explains in detail the correct and exclusive application of the four-wheel-drive principle as applied to the F-W-D. It also explains how the proper distribution of load increases efficiency and reduces operating cost. Send for it.

FOUR WHEEL DRIVE AUTO COMPANY
Department P **Clintonville, Wisconsin**

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In the ★ Service

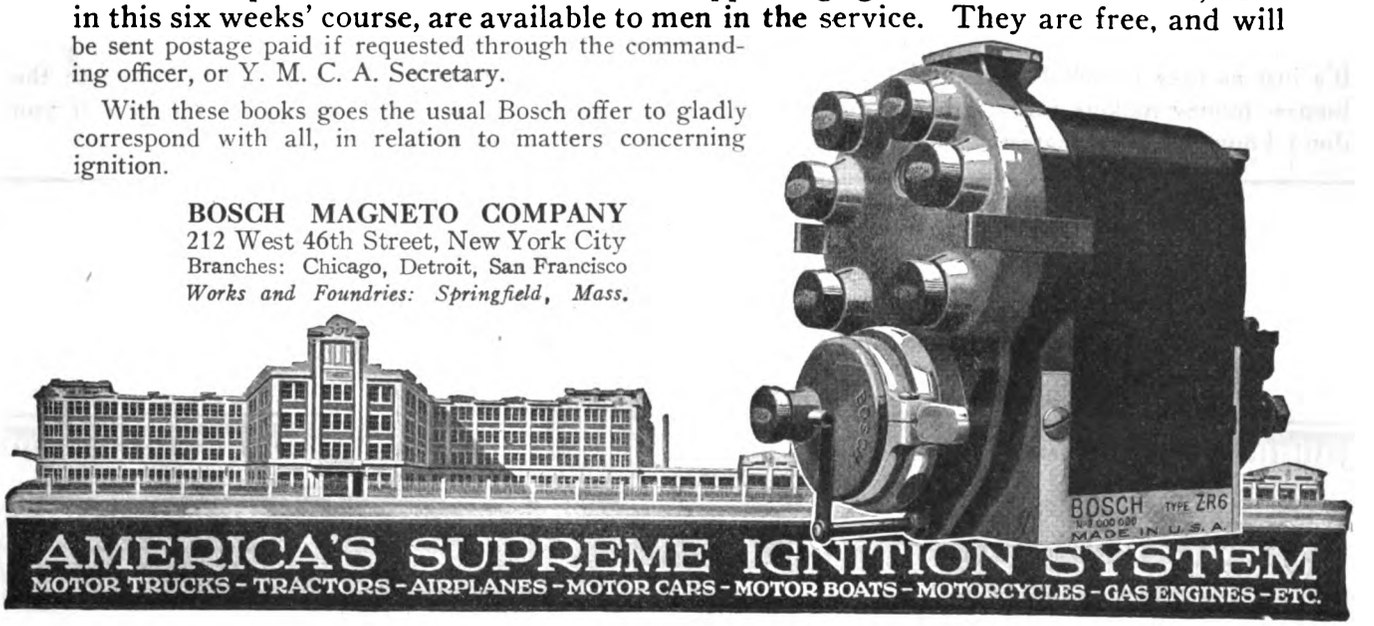


FOR months the Bosch schools have been co-operating with the Government, teaching to our soldiers the rudiments of gas engine operation, in addition to making plain the supposed mysteries of ignition.

The complete Bosch curriculum with supporting ignition reference books, used in this six weeks' course, are available to men in the service. They are free, and will be sent postage paid if requested through the commanding officer, or Y. M. C. A. Secretary.

With these books goes the usual Bosch offer to gladly correspond with all, in relation to matters concerning ignition.

BOSCH MAGNETO COMPANY
212 West 46th Street, New York City
Branches: Chicago, Detroit, San Francisco
Works and Foundries: Springfield, Mass.



AMERICA'S SUPREME IGNITION SYSTEM
MOTOR TRUCKS - TRACTORS - AIRPLANES - MOTOR CARS - MOTOR BOATS - MOTORCYCLES - GAS ENGINES - ETC.

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It is simpler and easier to lock your Ford with a K-W Autolock than it is to lock your door—**and more, you can't forget to lock** a K-W Autolock. To stop your engine you must turn **your** key to off position—removing it automatically locks your Ford. Without **your** key no one can start your Ford—or tamper with the coil box units. It prevents theft and the unauthorized use.

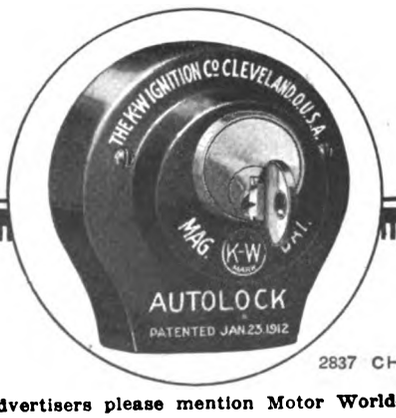
TRADE K-W MARK **AUTOLOCK**

Locks thru the ignition control.
Can't be wired around.
Has no unsightly levers or contraptions.
Saves as high as 15% in insurance premiums.
Prevents theft—Prevents unauthorized use.
Complies with all local ordinances.
Permits towing of your Ford from restricted zones.
There is NO master key.
You can't Forget to lock it.
You can't Forget to unlock it.

K-W Autolocks are sold by reliable dealers everywhere, and are guaranteed. Buy a K-W Autolock of your dealer today. Buy a lock that does the **whole job.**

DEALERS

It's just as easy to **sell** K-W Autolocks as it is for the purchaser to use them. K-W Autolocks are the biggest money makers for you because they give the user **most.** Order from your jobber now. If you don't know the one nearest you, write us and we will see that you are supplied immediately.

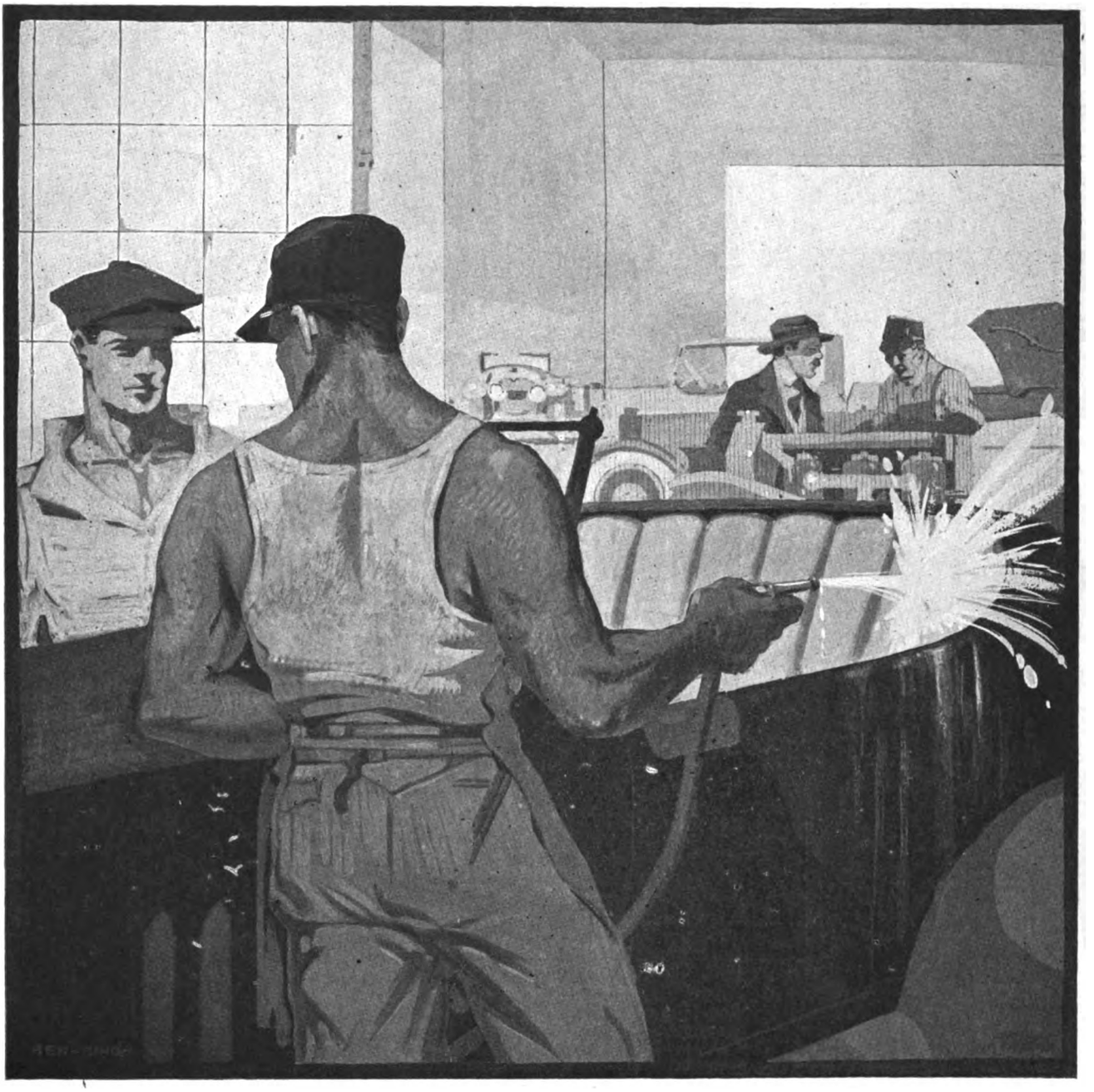


$3.50 Complete

TRADE K-W MARK **THE K-W IGNITION Co**
2837 CHESTER AVE. CLEVELAND, OHIO. U.S.A

When writing advertisers please mention Motor World—it identifies you.

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Waterproof—

Water has no more effect on Duratex than on a duck's back.

This gives it a marked advantage over leather for automobile upholstery. Instead of an accidental or careless wetting causing it to check, stiffen or crack, no amount of drenching seems to impair the softness of its surface or mar the beauty of its finish.

DURATEX

is a super-product—the finest and most practical substitute for leather.

It is made by the only concern which, after fifty years' experience in the manufacture of the finest leathers, realized the coming world-demand for a leather substitute and changed to the production of a super-product—one which would serve all purposes for which genuine leather had previously been used.

THE DURATEX COMPANY Newark, N.J. [signature] President

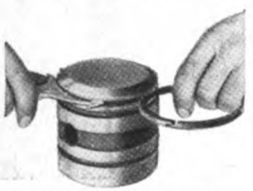
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MUNGER "Always Tight" Piston Rings



Ready to insert the Munger Re-grooving Tool to true-up a worn piston groove



The Munger Re-grooving Tool in position for cutting. Testing width of groove with an overwidth ring



Showing how easily Munger "Always Tight" Piston Rings can be placed in the piston grooves with the Munger Ring Insertion Tool

A simple one-piece ring that remains permanently gas-tight!

A ring so easy to install that anyone can slip it over the Munger Ring Insertion Tool without breakage or trouble of any kind.

A ring that will give you increased power, greater speed, smoother running, a lower gasoline consumption and an unusual freedom from excess carbon.

By a patent process of peening the Munger "Always Tight" Piston Ring is made to conform to the shape of the cylinder. The Munger "Always Tight" Expansion Joint keeps it compression-tight until completely worn out.

Each outfit of Munger "Always Tight" Piston Rings includes one *overwidth* ring for each piston, to be used in grooves that have become worn. Also a Re-grooving Tool, with which worn grooves can be str ightened and trued-up quickly and accurately without even disconnecting the piston from the connecting rod This avoids expensive lathe work and effects a saving that every car owner and repair man will appreciate.

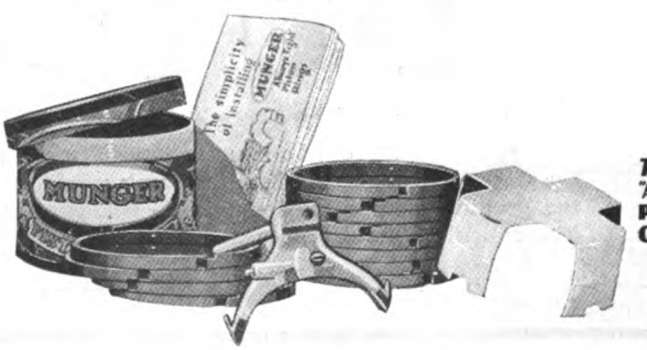


The MUNGER "Always Tight" expansion joint

SPLITDORF ELECTRICAL CO., Newark, New Jersey

Splitdorf Branch House and Service Stations:

Atlanta	10-12 E. Harris St.	Minneapolis	816 Hennepin Ave.
Boston	68 Brookline Ave.	Newark	278 Halsey St.
Chicago	2613 So. Michigan Ave.	New York	7 West 61st St.
Dallas	402 S. Ervay St.	Philadelphia	210 N. 13th St.
Detroit	1295 Woodward Ave.	Pittsburgh	5943 Ellsworth Ave.
Kansas City	1827 Grand Ave.	San Francisco	1022 Geary St.
Los Angeles	1215 S. Hope St.	Seattle	1628 Broadway
Toronto	469 Yonge St.		



The MUNGER "ALWAYS TIGHT" PISTON RING OUTFIT—

8 "Always Tight" Rings (Regular Size)
4 "Always Tight" Rings (Overwidth)
1 Regrooving Tool
1 Ring Insertion Tool

Accessory Dealers and Garage Men!

Any jobber will supply you with Munger "Always Tight" Piston Rings. Order them now!

List price for all sizes up to 3¾ in. diameter, $1.25 per ring.

With each complete outfit of rings, a Munger Piston Re-grooving Tool and a Munger Ring Insertion Tool are supplied without extra charge.

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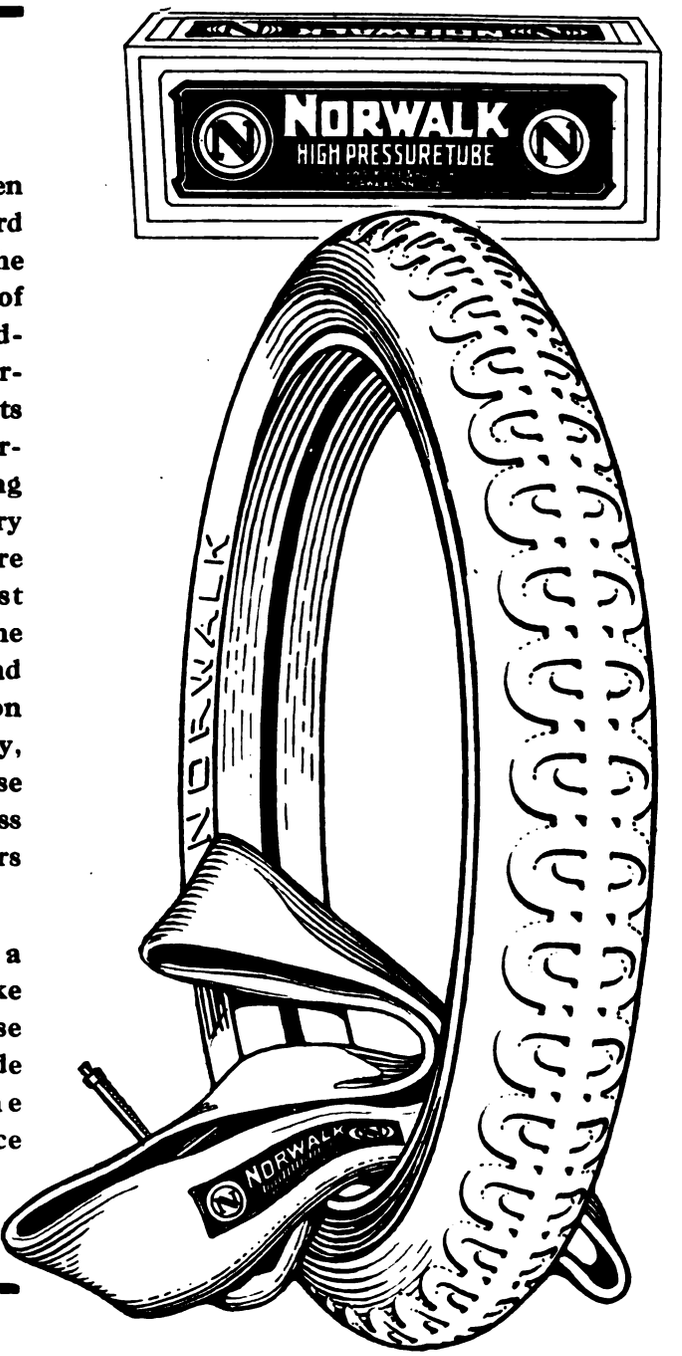
NORWALK

Protected Territory on the Coming Tire

YOU can assume quality when you consider the sales record of a business as young as the Norwalk business. The growth of this business in four years is misleading only in one way—you might forget the years of experience behind its establishment. It reflects the experience of rubber tire and tube making from the beginning of the industry and the best standards of manufacture up to date. Nothing short of the best tubes and casings would satisfy the makers of NORWALK Casings and Tubes. In addition to the satisfaction that comes from leadership in quality, there is the practical business sense that realizes that to build business permanently re-sales to old customers is the one way.

Norwalks are offered dealers on a protected basis. Some few will take advantage of the Norwalk franchise now—others later. Through the trade the word is passing, "Get the Norwalk Agency." Correspondence invited.

NORWALK TIRE & RUBBER CO.
NORWALK, CONN.



HIGH PRESSURE
CASINGS *AND* TUBES

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R. S. Lane, President — A. K. Hebner, General Manager — D. H. Torrey, Sales Manager — H. J. Detterich, Advertising Manager

An Expert Service Organization Nation-Wide in Scope

BEARINGS SERVICE COMPANY

A service that is "expert" in all that the word implies—

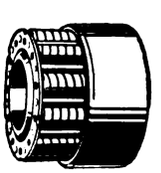
—has been responsible for the amazing growth of the Bearings Service Company.

After one year this concern is operating twenty-two branches in the leading motor car centers and has more than 500 distributors.

A force of thoroughly trained engineers, complete manufacturing records, and a stock of Timken, Hyatt and New Departure Bearings are facilities at each branch.

This concern is able to supply motorists with new bearings for repairs and replacements without any inconvenience to the motorist.

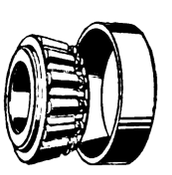
The Bearings Service Company is the national authorized service representative for the manufacturers of Timken, Hyatt and New Departure Bearings.



Hyatt



New Departure



Timken

Branch Managers



N. J. Fitch, Atlanta — *H. R. Coxe*, Boston — *W. H. Richardson*, Chicago — *L. H. Dodd*, Cleveland — *W. R. Herring*, Dallas — *G. M. Flyum*, Denver — *R. B. Campbell*, Detroit — *J. L. Goodall*, Indianapolis — *R. F. Meister*, Kansas City — *D. B. Bevier*, Los Angeles — *R. M. Williams*, Minneapolis

When writing advertisers please mention Motor World—it identifies you.

Digitized by Google



C. T. Barbour
Purchasing Agent

L. V. Cady
Auditor

J. W. Owen
Traffic Manager

L. M. Baker
Manager Rim Dept.

Now Enlarges its Field to Include RIM SERVICE

This nation-wide perfectly working service organization is now offering to motorists, dealers and garagemen a complete service on RIMS.

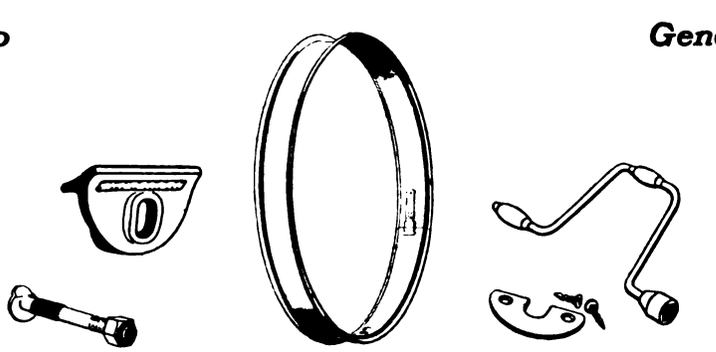
No matter what make or model car—if it is equipped with Detroit, Baker, Perlman or any similar type of rims—the owner can now get new rims in the time it takes to change a tire.

This is the first time that a country-wide service on rims has ever been offered to the motoring public and those who have had occasion to become acquainted with the class of service rendered by this company will realize that it is to their advantage to avail themselves of this new Rim Service.

In every important motor car center there is "Rim Service" just around the corner from you.

Twenty-two Branches

General Offices Detroit



Branch Managers

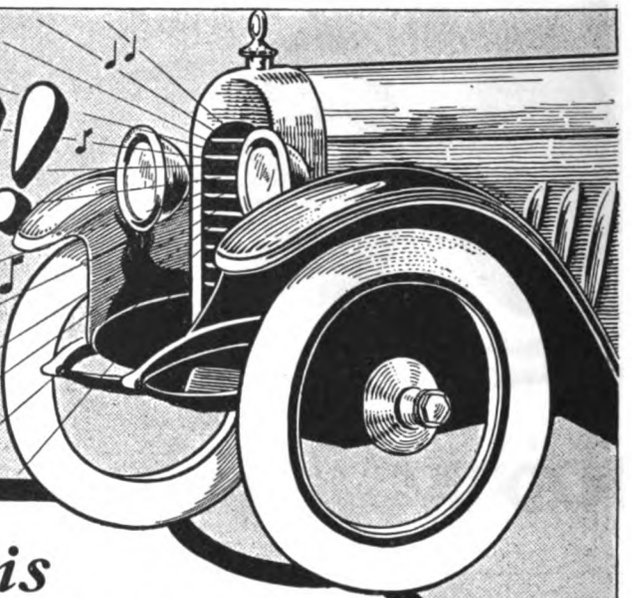


N. B. Keller New Orleans
R. S. Tuttle New York
W. C. L. Hodgson Omaha
L. H. Ward Philadelphia
C. M. Fox Pittsburgh
R. H. Cross Portland, Ore.
G. G. Ballagh Rochester
L. A. Johnson San Francisco
C. R. Jones St. Louis
R. P. Gosslee Seattle
M. J. Shortt Toronto

When writing advertisers please mention Motor World—it identifies you.

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WARNS! DOES NOT FRIGHTEN



Here it is

The new and beautiful Warning Signal that is taking the country by storm

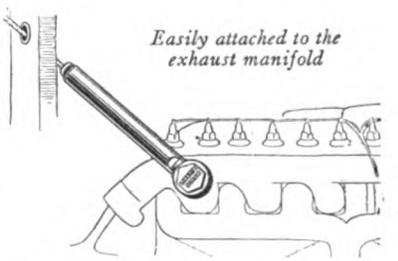
Liberty Siren

SINGS LIKE A MOCKING BIRD

The greatest success in years—every motorist wants one. It's the perfect warning signal—sings and trills like a bird—has a range of two octaves—plays 1000 different tone combinations—adds class to any car—conforms with all city ordinances.

Positively Guaranteed

The Liberty Siren saves the battery—costs nothing to operate—controlled from the dash or steering wheel—self-cleaning and indestructible. It is handsomely nickel-plated—and comes boxed with full instructions for installation—price $3.50 complete.



Easily attached to the exhaust manifold

Fits all cars—uses exhaust gas—costs nothing to operate

Dealers

Ask your jobber. If he cannot supply you, write us direct, giving your jobber's name and address.

Jobbers

The Liberty Siren has "gone over the top." Scores of orders are coming in daily—get ready for the demand in your territory.



$3.50 Complete

LIBERTY ACCESSORIES CORP.

1136 Chestnut Street ST. LOUIS, U.S.A.

Digitized by Google

BEST IN THE LONG RUN

FAIR TREATMENT

GOODRICH Sells FOR the Dealer

GOODRICH Tires on the shelves of a shop can be reckoned in terms of dealer's profit. They are tires sold.

Count them sold, Mr. Dealer, because Goodrich sells tires FOR you rather than to you. Every honest and genuine selling force in business has been marshalled by Goodrich to sell them for you.

Goodrich workmen build SILVERTOWN CORDS, BLACK SAFETY TREADS and TUBES which are the flower of nearly half a century of skillful, conscientious rubber making. *That starts them best made.*

Goodrich Test Car Fleets under the keen eyes of tire experts put them to the road test the country over, and demonstrated their sure service on America's roads in every region. *That proves them.*

GOODRICH SERVICE VALUE TIRES

Goodrich Fair Treatment, the Goodrich creed which from the beginning of Goodrich has said a Goodrich patron must be satisfied with a Goodrich product, safeguards their future with the good will of the past. *That guarantees them.*

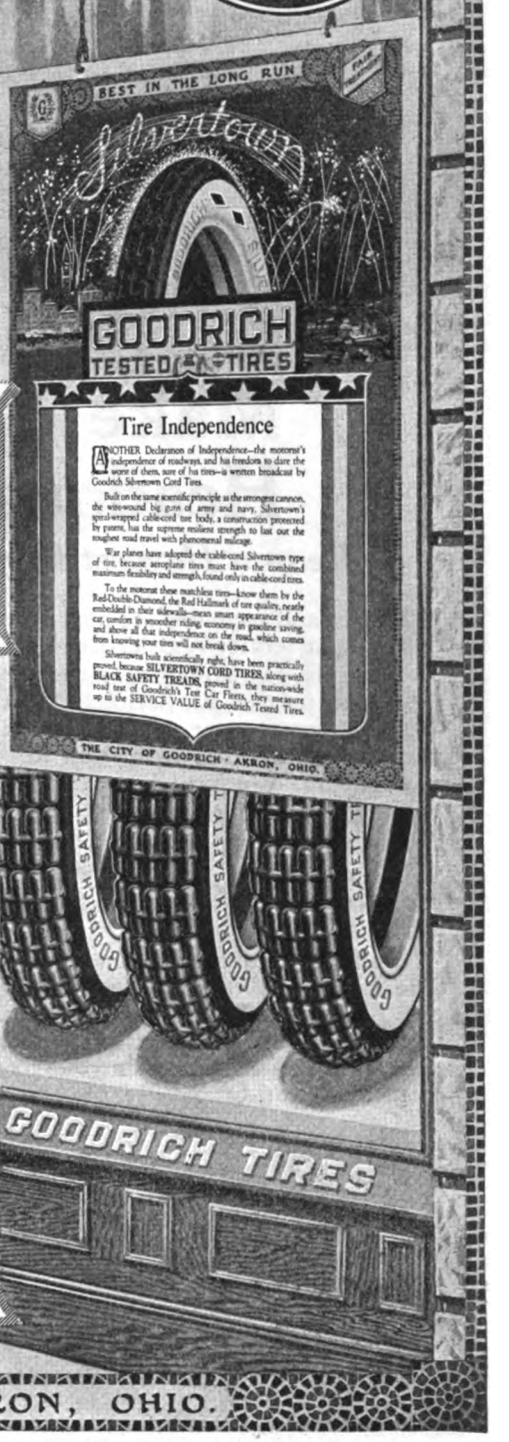
Goodrich salesmanship, ever energetic, ever watchful to new business conditions, keeps that *product, proof,* and *guarantee* ever big and fresh in the eye and mind of the tire user. *That sells them.*

Re-enforce your business with Goodrich Service Value Tires, and Goodrich methods of selling.

Put a "Goodrich Tested Tires" sign *outside* your store, and have all Goodrich selling forces *inside* working for you.

The year 1918 calls for the highest and best in tires and tire selling. Be a Goodrich dealer and you get it with profit and pride.

THE B. F. GOODRICH RUBBER COMPANY

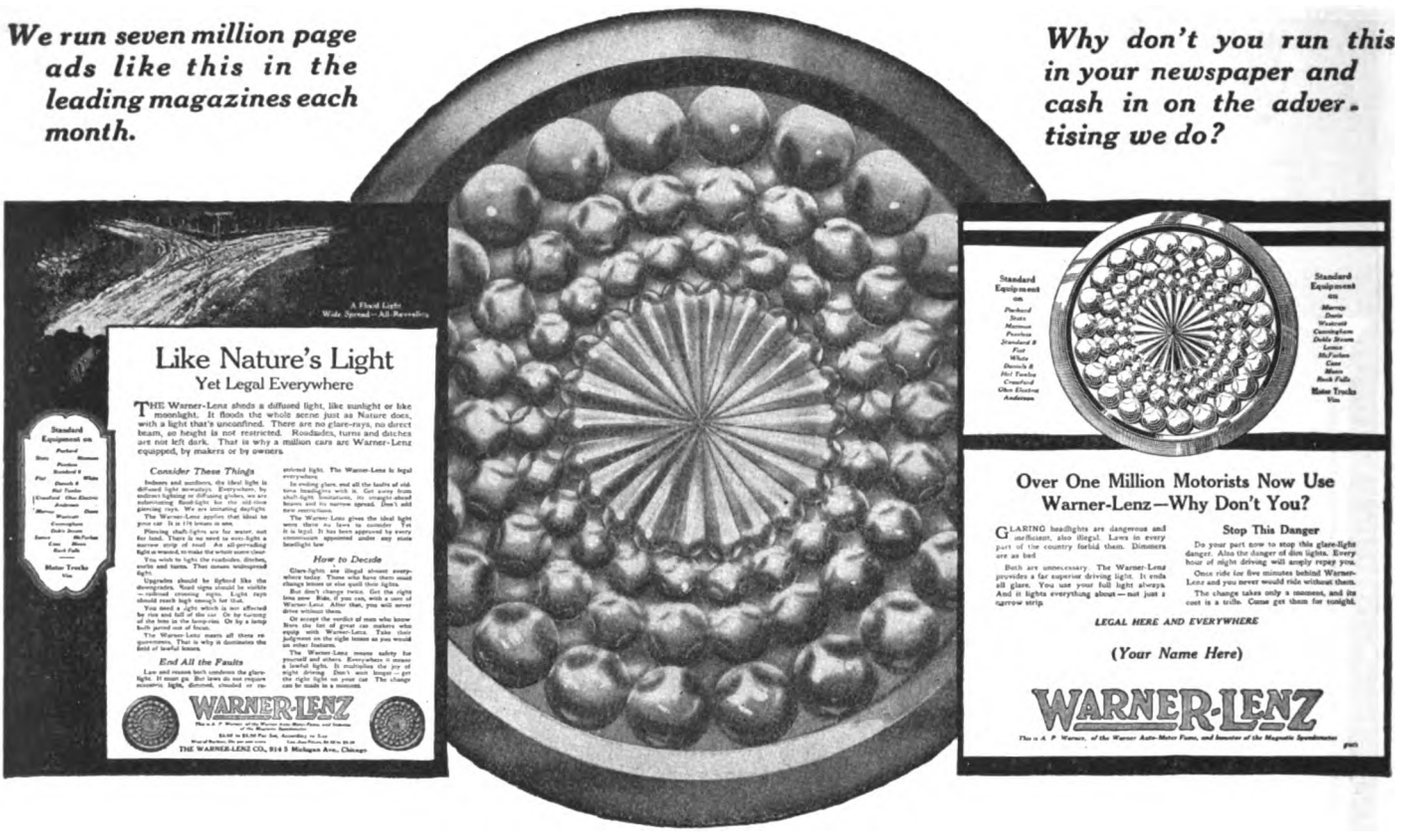


THE CITY OF GOODRICH · AKRON, OHIO.

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We run seven million page ads like this in the leading magazines each month.

Why don't you run this in your newspaper and cash in on the advertising we do?



Make Your Store Known as Headquarters for Warner-Lenz

Reap a Harvest from the Greatest Accessory Campaign Ever Run

IT pays, and pays well, to make your store known as headquarters for Warner-Lenz. It can easily be done.

Note the two advertisements shown above. One, we run as part of our national advertising campaign — the greatest ever placed behind an automobile accessory; the other is for you to run in your local newspapers. We furnish it to you free upon request.

In this way you reap the benefit of the widespread advertising we are doing.

As our share, we run seven million full page advertisements each month. Think what influence such a campaign has.

Full pages appear at least once each month in The Saturday Evening Post, Literary Digest, Scientific American, Cosmopolitan, American and Metropolitan Magazines. Also in many motor and farm papers. Every car owner in your territory is reached monthly — and oftener.

Warner-Lenz is the pioneer and leader. Already, over one million cars are lighting night roads with its glareless light. It is legal under every law, state or local.

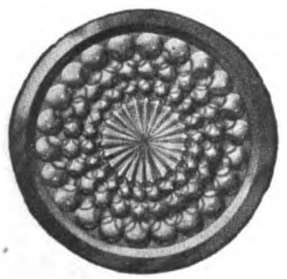
Nearly every car that has not already changed lenses will do so this summer. The great majority will change to Warner-Lenz.

Our advertising is winning hundreds of thousands of new users to Warner-Lenz.

Be sure you get your share. Warner-Lenz is the fastest selling and most profitable accessory ever marketed.

This newspaper advertisement is but one of the dealer helps we will furnish you. Send for it today and, at the same time, find out about the many other business winners we will send you, free.

This means business for you — big business. Write to us today.

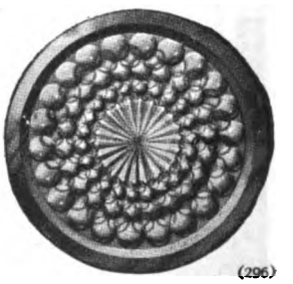


WARNER-LENZ

This is A. P. Warner, of the Warner Auto-Meter Fame, and Inventor of the Magnetic Speedometer.

Warner-Patterson Co., 914 S. Michigan Ave., Chicago

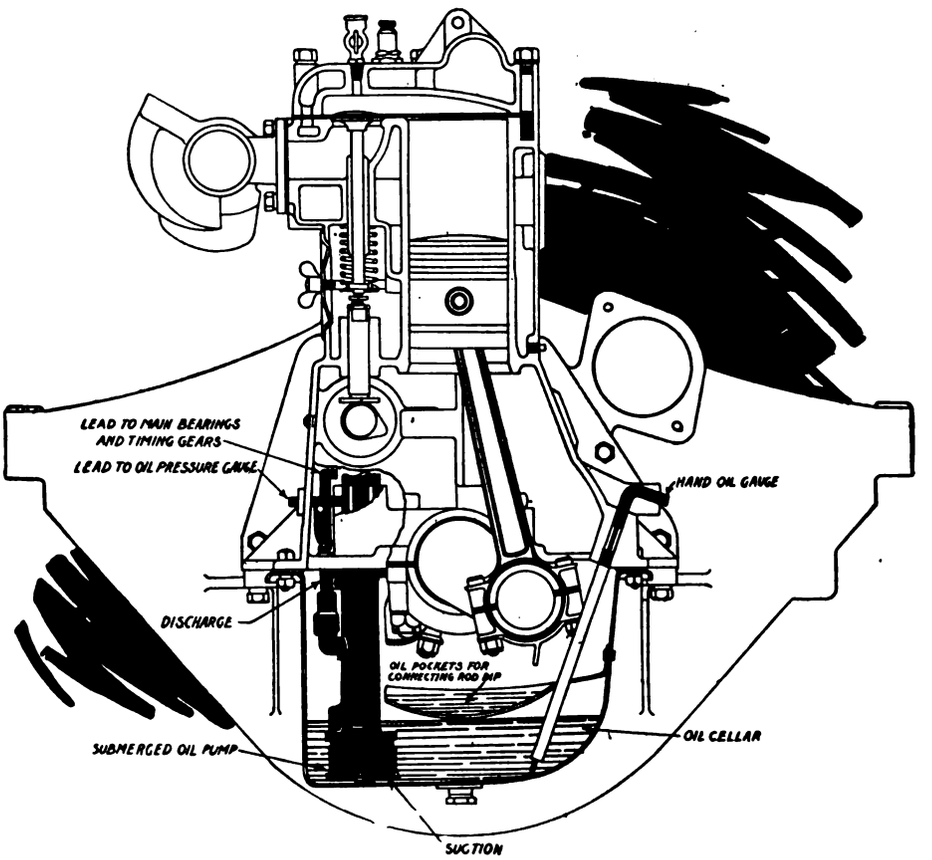
(Successors to The Warner-Lenz Co.)



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KISSELKAR



The Kissel Motor Automatically Oils Itself—*No Waste!*

A MOTOR not oiled properly is a motor with bearings burning out—wrist pins sticking—pistons and cylinders scoring—cam shaft receiving excessive wear. Result—loss of power and "pep."

Nothing like that with the Kissel-built motor. A positive driven oil gear pump (see cut above) submerged in oil and fed by pressure—automatically ***envelopes all parts in a continuous mist or film of oil*** positive in action and clean sweeping in effect.

And note this—the amount of oil in cylinders is gauged so as to avoid excess of oil above pistons, thus eliminating fouling spark plugs and carbonization, which cause pre-ignition, "spark knock" and deadly gas fumes.

DEALERS—The above is one of the Hundred Quality Features of Kissel's Hundred Point Six. The other 99 are just as effective from a sales-creating standpoint. If there is no Kissel Agency in your territory, it will pay you to write or wire us to-day.

KISSEL MOTOR CAR COMPANY Hartford, Wis., U. S. A.

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When Your Spring Breaks Put On

VULCAN QUALITY

The Replacement Spring

That's the message now being carried to millions of car-owners through the pages of National publications such as:

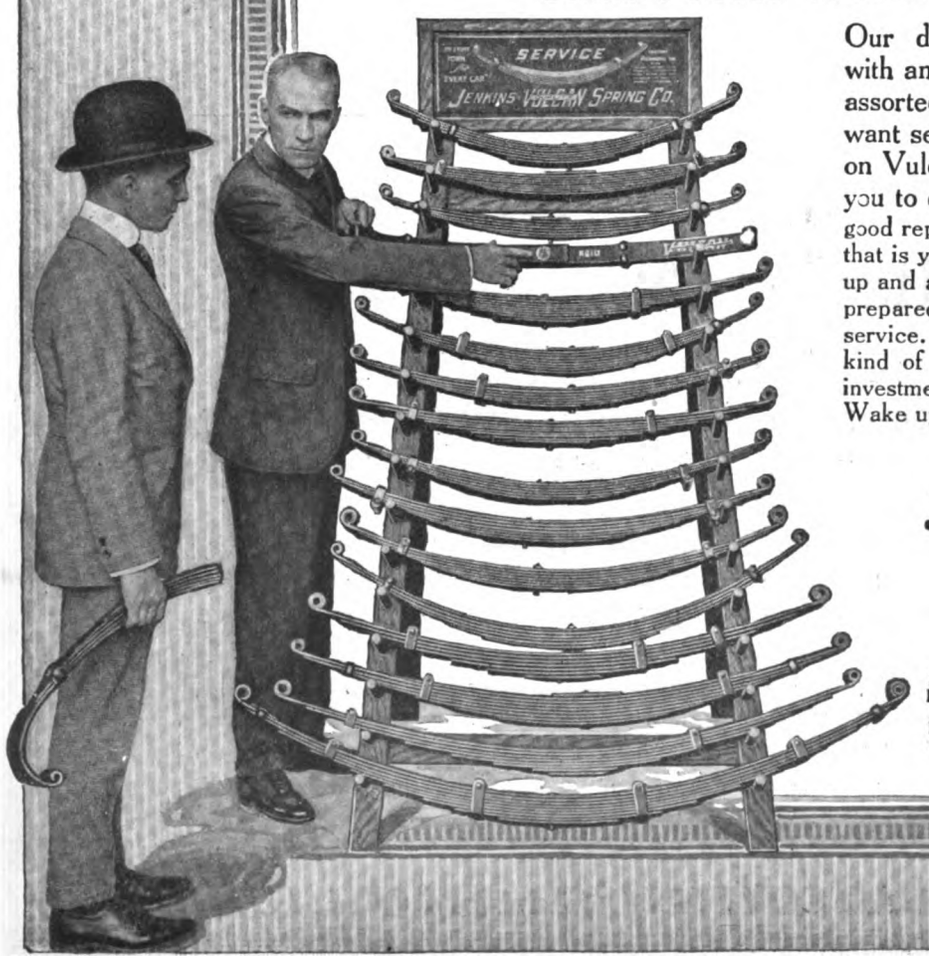
Saturday Evening Post,
Colliers Weekly,
Leslies Weekly,
Automobile Blue Book
and all Trade Papers.

To Dealers: You **need** this display rack full of **quick-selling,** replacement Vulcan Springs—and you need it **now.**

If you are one of the 3,000 live dealers who already have it, see that your stock is complete. Order what is short.

Here is something you want—

Real Profit With Small Investment



Our display rack is FREE to you with an order for one dozen or more assorted Vulcan Springs. Owners want service. They are already sold on Vulcan Springs. Now it's up to you to cash in on this advertising and good reputation and pocket the big profit that is yours. When the car owner drives up and asks you to "put on Vulcan"—be prepared. He wants **service**—real service. Give it to him. You need this kind of profit that requires no growing investment. Vulcan Springs move fast. Wake up!

Write Today for Our Spring Rack Proposition.

JENKINS VULCAN SPRING CO.

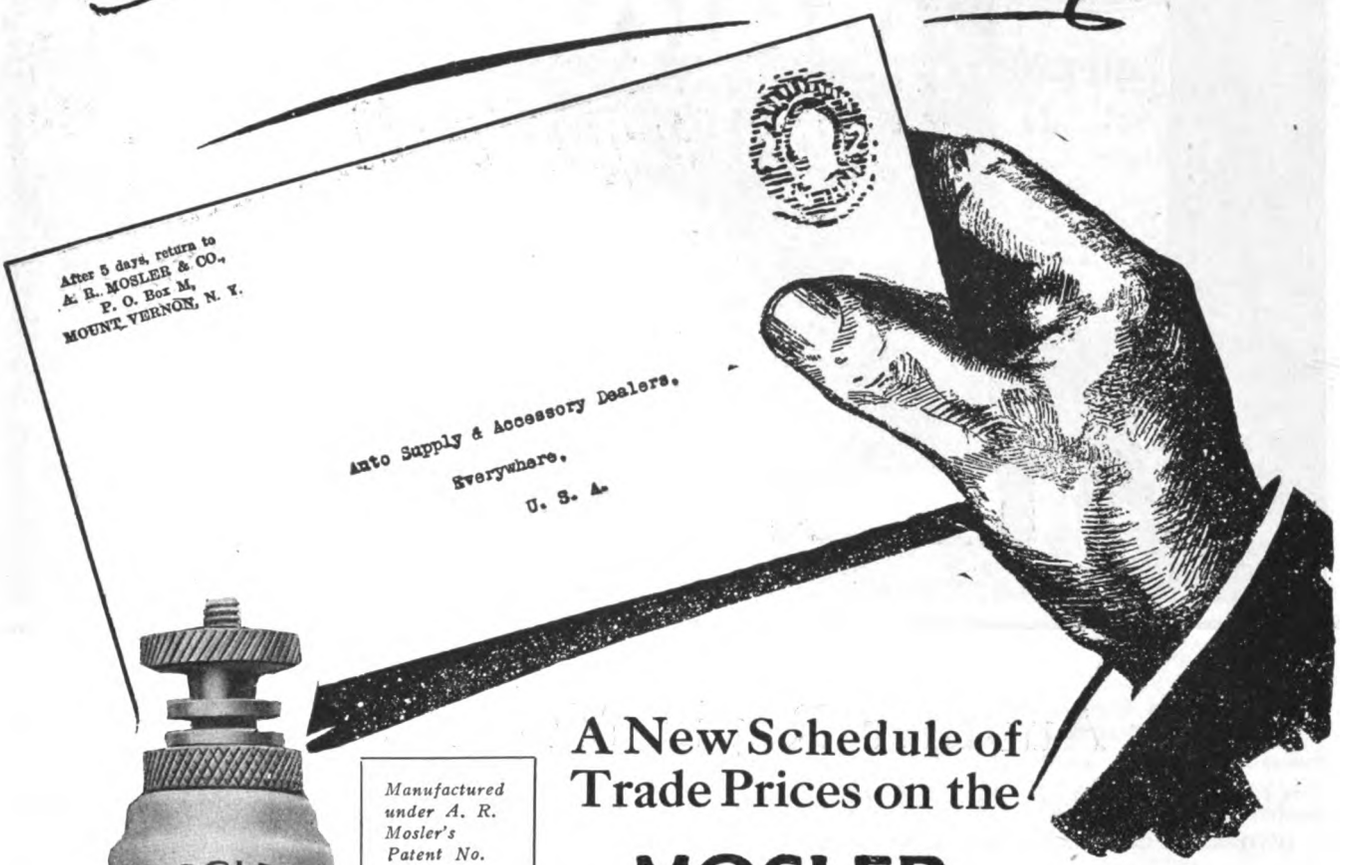
Richmond, Ind.

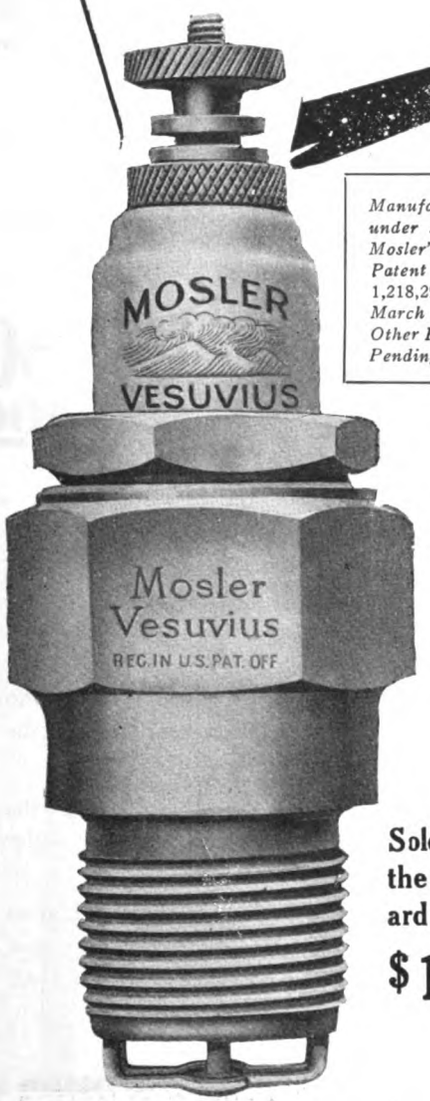
Factory Branches

St. Louis, Missouri 1402 Chestnut Street
Minneapolis, Minn. 1024 Hennepin Ave.
Dallas, Texas 209 South Houston St.
Reading, Pa. 538 Franklin Street
Sumter, S. C. 29 Caldwell Street

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Trade Discounts





Manufactured under A. R. Mosler's Patent No. 1,218,298, March 6, 1917, Other Patents Pending

A New Schedule of Trade Prices on the

MOSLER VESUVIUS PLUG

No camouflage here; just straight stuff!

We have not made a price increase on the Vesuvius Plug for four years, and have not advanced it a penny since the war broke out, but now we have to come clean and say that there is not enough margin in the goods at the old price to make it worth while, and as of June 1st, "Price Increase" is with us.

In less than hundred lots the price is increased 5 cents per plug—

In hundred lots—2½ cents.

Surely a minimum increase.

Sold at the standard price,

$1.00

Send for a new dealer schedule—and full information on our whole Vesuvius sales plans.

A. R. MOSLER & COMPANY

NEW YORK, N. Y.

18 Years of Leadership in Spark Plug Manufacture

Digitized by Google



Another Rapid Marvel Seller

Marvel dealers have demanded a reliable, cold patch outfit that would give the motorist the utmost in convenience and economy—AND HERE IT IS. The Marvel

Three Sizes Trusti-*patch* 25c 50c & $1.00

Comes in Sheets from which the motorist cuts any size or shape patch he wishes. There is no waste. Pin holes, tears and blowouts all look alike to the Trusti-*patch*.

The repair material is of a high grade, semi-cured gum on a Khaki or Rubber backing. To make a repair simply cut a patch the exact size required by the injury—no more—clean tube and prepare with Marvel Cement that comes with the outfit; then apply the Trusti-*patch* pressing down firmly with the fingers.

You can supply your trade with Trusti-*patch* to meet every requirement. Khaki back Trusti-*patch* comes in 25c, 50c and $1.00 cans—Rubber back Trusti-*patch* comes in 50c and $1.00 cans.

Selling the Marvel Trusti-*patch* is good business for the dealer because the motorist is quick to see the fallacy of carrying a big assortment of various shaped patches when he can cut any size required by the particular injury—with no waste. By selling him just what he needs you will make a satisfied customer—one who comes back for other Marvel Accessories—and the other products you stock.

Marvel dealers have a big advantage—every item in the Marvel Line is made right, is reliable, a good seller and profit maker.

Order from your jobber today a quantity of Marvel Trusti-*patch*. If you don't know the one nearest you, write us and we will see that your needs are promptly filled. Use the coupon.

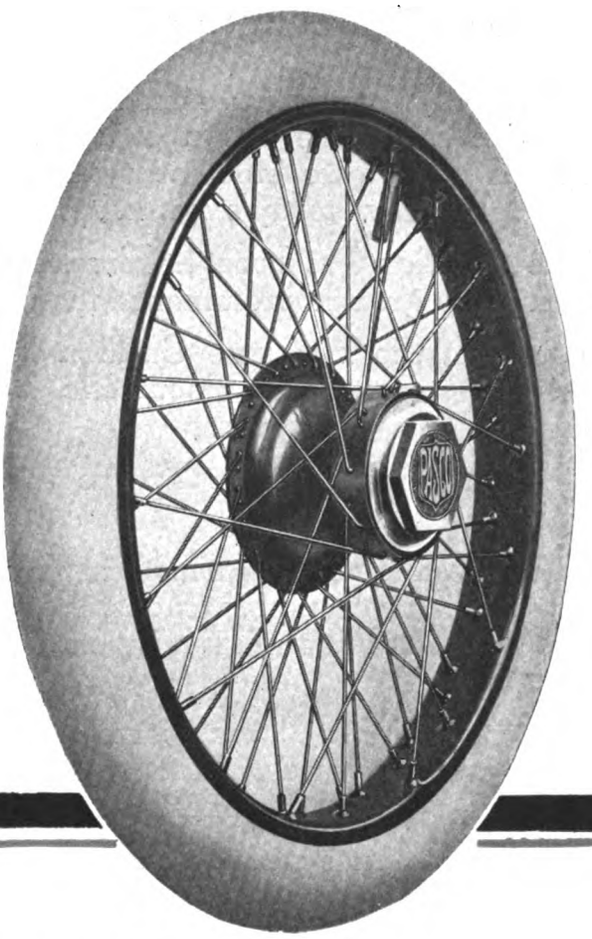
USE THE COUPON

THE MARVEL ACCESSORIES MFG. CO.,
2013 East 46th St., Cleveland, O.
Please send me particulars, prices, etc., on the Marvel Trusti-*patch*; also details of your co-operative selling helps.
Name .....
Address .....
City and State .....
My jobbers name is .....
City .....
State .....

THE MARVEL ACCESSORIES MFG. CO.
CLEVELAND, O.

Digitized by Google

Strongest Wire Wheel made 5 times as Strong as Wood Wheels





The unparalleled strength and rugged dependability of Pasco Wire Wheels have been proved by actual tests. The 4-spoke-crossing construction of tangent spoke-lacing, peculiar to the Pasco, constitutes a demonstrated protection against wear and breakage.

PASCO WHEELS

Besides having a superior web (each spoke crossing 4 others), Pasco Wire Wheels possess two other exclusive features, namely an indestructible hub-cap and a safety locking device that locks hub-cap and wheel to the hub, effectually preventing a loose or wobbling wheel.

These special features are not the results of happy chance, but of many years' study and practical experience in the manufacture of Wire Wheels. They are visible evidence of the thorough competence in Wire Wheel building distinguishing this organization, whose efforts have been exclusively devoted to this business for more than a generation.

You will find Pasco Wheels on practically every make of Airplane now in use. Considering the severe exactions of the Air Service, their pre-eminence in this field is significant.

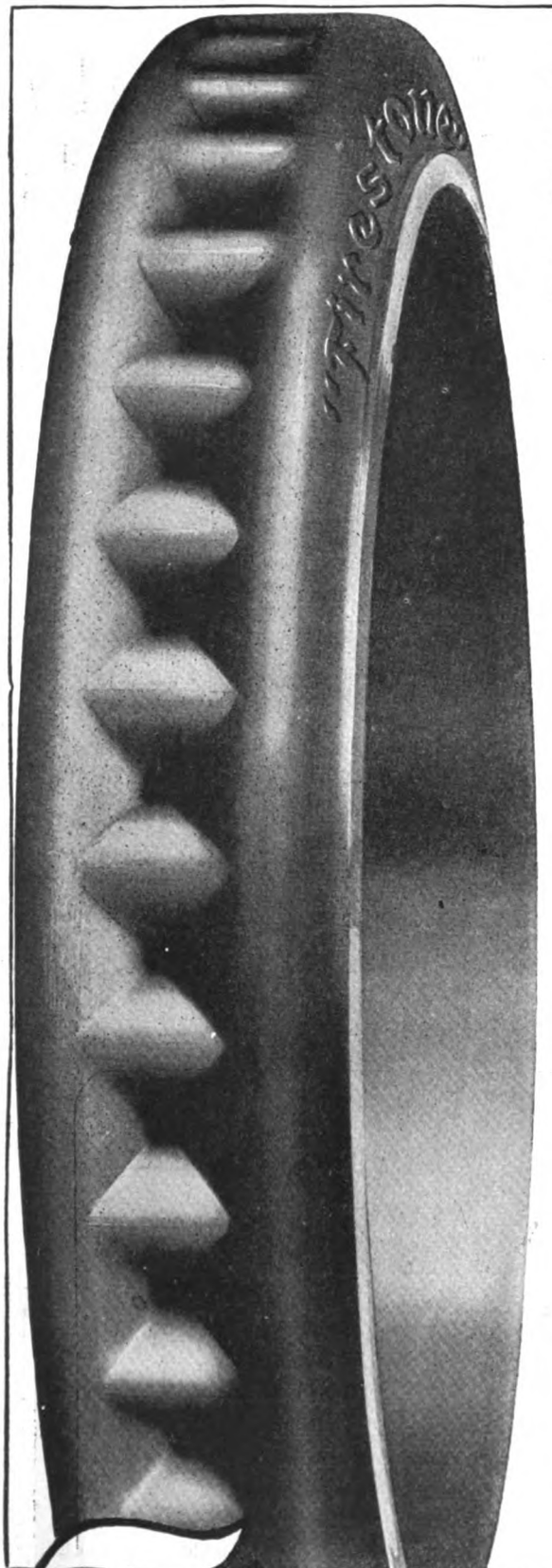
DEALERS: A remarkable opportunity for immediate and continued profits. Write for liberal sales proposition.

National Wire Wheel Works, Inc.

Geneva, N. Y. U. S. A.

PASCO

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War-Time Demands Emphasize the Extra Values in Firestone High-Speed Tires

TRUCKS must move faster. War conditions make it imperative. Truck speeds that were efficient twelve months ago fall below today's necessity.

The situation has brought Firestone Truck Tires into greater prominence than ever.

For both the Firestone Cushion Tire and the Firestone Giant Pneumatic Tire are essentially speed types.

The Firestone Cushion Tire is the fastest solid truck tire.

The Firestone Giant Pneumatic Tire brings pneumatic protection to trucks. For extreme truck speeds this tire is indispensable.

Both these types, like the entire line of Firestone Truck Tires, possess the great resilience and sure hold of the road that make speed *safe* for mechanism and men.

And Most Miles per Dollar is the measure of their economy.

Then there is the Firestone Giant Solid Tire with the grooved tread, which has revolutionized heavy trucking. For every type of vehicle there is a specially built Firestone tire. Our experts are at your disposal with advice as to the equipment best fitted to give you efficient, economical results. Call in the Firestone man.

FIRESTONE TIRE AND RUBBER COMPANY
Firestone Park, Akron, Ohio Branches and Dealers Everywhere

Firestone
TRUCK TIRES

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EISEMANN

Away Goes Guesswork When Facts Step In

You need not depend upon impressions or opinions—your own or the other fellow's—to decide what source of ignition will give you the best service on truck or tractor or passenger car.

The superiority of the Eisemann Magneto is one of those demonstrated facts which are not open to argument.

Tests—competitive tests—tests under all conceivable conditions—tests conducted by ignition authorities of unquestionable standing—have proven conclusively the superior efficiency, dependability and durability of the Eisemann Magneto.

It is for this reason, and no other, that 126 manufacturers of motor vehicles—including practically all the recognized leaders who have established reputations to maintain—have adopted Eisemann Magnetos as standard equipment.

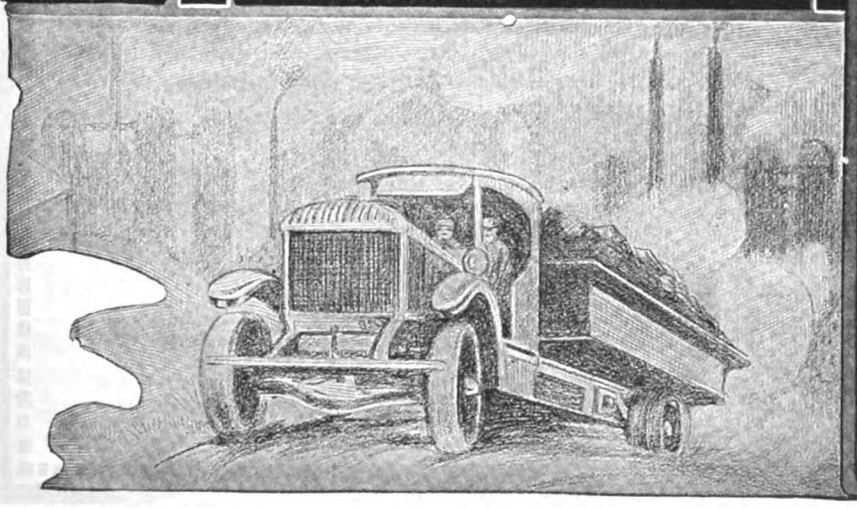
THE EISEMANN MAGNETO-COMPANY

Sales and General Offices:
32 Thirty-third Street, Brooklyn, N. Y.

Chicago:
910 So. Michigan Ave.

Detroit:
802 Woodward Ave.





EISEMANN SUPER-CONSTRUCTION

2—The Armature

The making of the Armature of an Eisemann Magneto is an excellent illustration of the exhaustive and scrupulous attention to detail through which this Company has realized its determination to produce the finest Magneto that can be built.

To complete the Armature Core and Winding from raw material to finished product, requires 49 distinct operations, inspections and tests. Though these processes cannot be described here, it should be pointed out that owing to the extreme care applied both to the selection of materials and to the processes of construction, Eisemann Armatures practically never short-circuit or burn out.

The shadowgraph above reveals the position of the Armature with relation to the Magneto as a whole.

Digitized by Google

Seventeen times around the earth equals the mileage of motor roads charted by Blue Book Scout Cars and described in detail in the

New 1918

Automobile Blue Book

Any place—anywhere in the United States—that can be reached by automobile—may now be easily reached by any motorist by following the simple Blue Book directions.

With the Blue Book he can plan his trips from start to finish before he starts, know how long it will take, what the roads are like, the stopping places, points to see, etc.

Then—on the road—in the car—the Blue Book will guide him every mile of the way, by landmarks and mileages; give him maps of towns and cities he'll pass through; point out the interesting places; direct him to hotels, garages and service stations when he comes to them; warn him of curves, grades and crossings ahead; give him speed laws and traffic regulations, steamship schedules and rates—it will enable him to make the trip there and back without having to ask a single question either before he starts or while he is on the way.

Known by motorists from Coast to Coast—the Blue Book is the one complete, up-to-date, practical automobile road guide on which they depend in vastly increasing numbers each year.



ELEVEN VOLUMES IN ALL

THE 1918 VOLUMES

Volume 1—New York State and Adjacent Canada.
Volume 2—New England and Maritime Provinces.
Volume 3—New Jersey, Pennsylvania, Delaware, Maryland, District of Columbia, Virginia and West Virginia.
Volume 4—Michigan, Indiana, Ohio and Kentucky, excepting Upper Peninsula of Michigan.
Volume 5—Illinois, Minnesota, Wisconsin, Iowa, Missouri and Upper Peninsula of Michigan.
Volume 6—The Southern States.
Volume 7—Montana, Wyoming, Colorado, New Mexico, Texas, North and South Dakota, Nebraska, Kansas, Oklahoma, Arkansas and Louisiana.
Volume 8—California, Nevada, Utah and Arizona.
Volume 9—Washington, Oregon, Idaho and British Columbia.
Volume A—New York City Metropolitan Blue Book. 200 round trips within a 100 mile radius of New York City.
Volume C—Chicago Metropolitan Blue Book. 200 round trips within a 100 mile radius of Chicago.

Bound in blue flexible binding.
Each volume $3.00 net or $3.15 postpaid.

Thousands of Dealers and Garages

are today selling Blue Books—making good profits—and giving their customers better satisfaction—where in former years they simply wasted time.

When you are asked for road directions, do you **give** your valuable time telling how—or **give away a free** road map—neither of which is satisfactory to the tourist or fair to you?

Motorists will pay for this information—gladly—if you show them an Automobile Blue Book—and feel better satisfied.

Blue Books will serve them better—and you will be selling a commodity that you now largely give away.

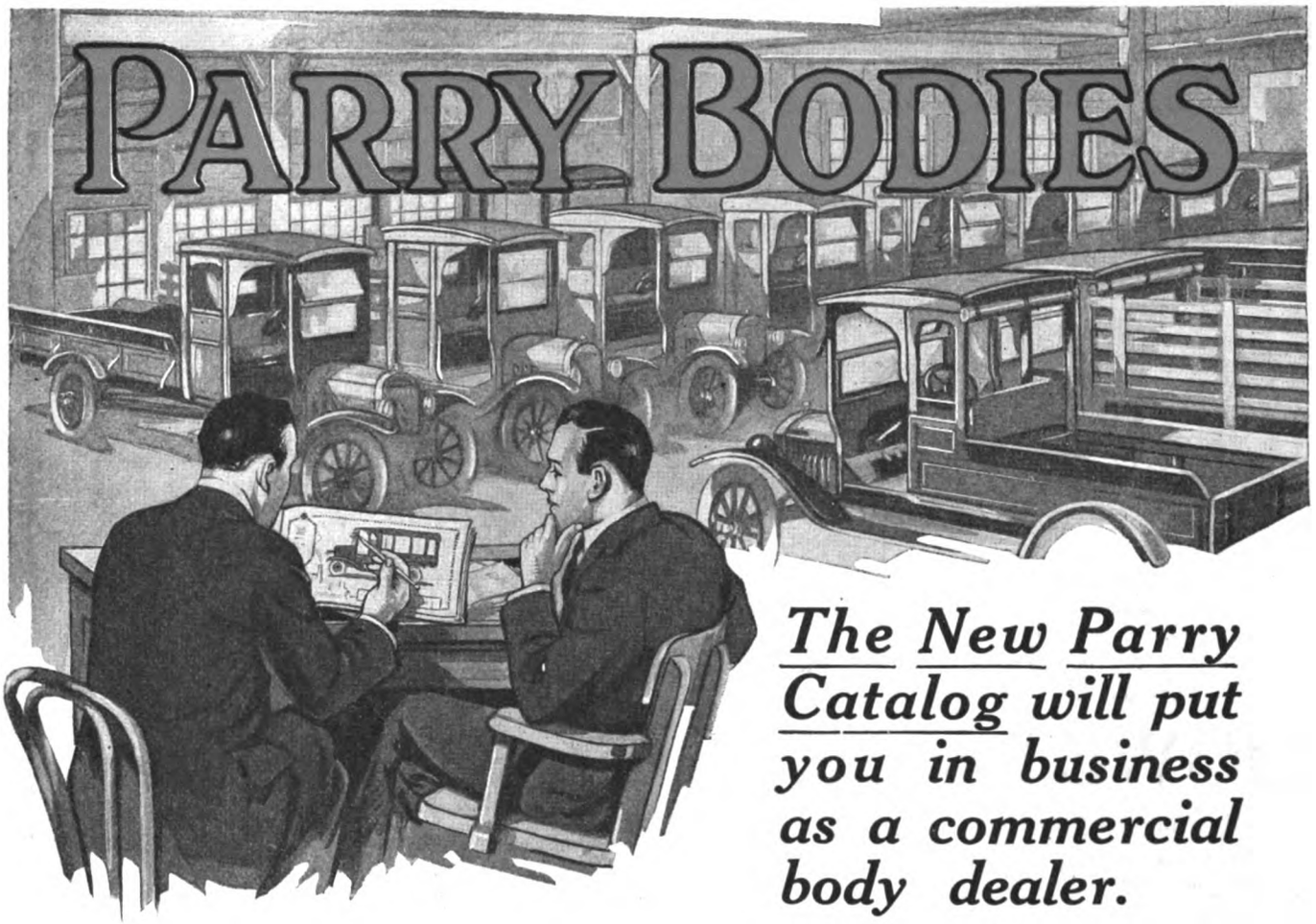
If you are not today selling Blue Books you are depriving yourself of many $3.00 sales—and also of many more dollars in sales of other equipment that the Blue Books invariably bring to you.

Don't delay any longer. Send today to the nearest office for discounts and full information. Or, better still, let us send you a copy of the volume for your territory to look over. It will have to sell itself to you. If it doesn't, return it at our expense.

The Automobile Blue Book Publishing Co.

900 So. Michigan Ave. CHICAGO
243 West 39th Street NEW YORK
513 Pacific Building SAN FRANCISCO

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MANY dealers prefer having a large stock of commercial bodies on the floor at all times—believing that sales are thus made easier and deliveries quicker. That is unquestionably true if sufficient floor space is available. There are many hundreds of commercial body dealers, however who lack either the space or the capital to keep a number of bodies on the floor for display purposes, and for immediate delivery.

The new Parry commercial body catalog was designed principally for the purpose of eliminating—for the small dealers—the necessity of "stocking" heavily for their trade. This new catalog is complete from every standpoint. In simplicity it is a gem. By its use dealers will be enabled to practically display and sell bodies just as intelligently as though their display room was stocked with sample jobs.

Maybe the question of delivery now arises in your mind. Parry has always made 24-hour deliveries. This schedule has been somewhat slowed down because of labor and transportation conditions—because of a tremenduous demand—but we are now making deliveries within three to five days—which is considerably quicker than most other body makers can fill orders.

The Parry Catalog is so complete and so comprehensive that you can sell your prospect directly from it. You can wire your order by code word, and within two or three days it will be on its way to you. We have tried to put this catalog in the hands of every responsible dealer. If, by any chance, you have not received your copy advise us immediately, and we will forward same by next mail.

PARRY MANUFACTURING CO - INDIANAPOLIS



World's Largest Commercial Body Factory

When writing advertisers please mention Motor World—it identifies you.

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Make Good Business Better With HOWE Accessories

Scores of jobbers and hundreds of dealers are hitting the Big Profit target with our rapid-fire sellers—

Howe Kork Tred, the perfected cork-inlaid transmission lining for Fords—

And the Howe Spotlight, the searchlight with the wonderful spring-controlled bracket.

They are making enviable records in Better Business marksmanship, as shown by the large repeat orders for these two motoring essentials of proven quality.

If you are not carrying Howe accessories, you are letting profitable sales get away or depriving your customers of the best. Either is bad business.

Why not join the Better Business army? Our discounts to the trade are most liberal.

HOWE Kork Tred Makes Fords Behave

There is no other Ford transmission lining that is "just as good" as Kork Tred, no other that has the exclusive Kork Tred improvements or will wear as long and serve as efficiently.

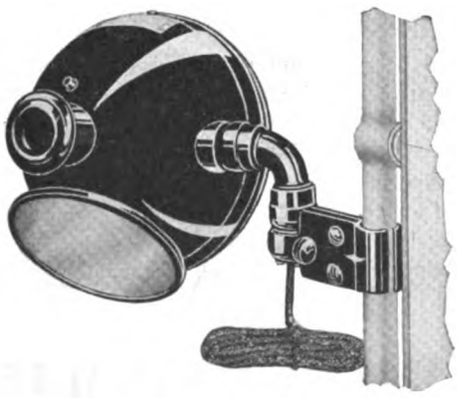
The Kork Tred grip combines the smoothness of velvet with the sure hold of the bulldog. It eliminates the grabbing, jerking and slipping common to cars equipped with ordinary transmission lining which becomes glassy smooth in a few months of use.

The disks of cork cannot come out. They are securely held in pockets of brass, firmly riveted in high-grade fabric.

These brass pockets also serve as tiny oil reservoirs, holding the lubricant that the cork discs absorb and releasing it when pressure is applied, thus making brake and transmission action smoother and more quiet.

A set of Kork Tred for the Ford retails at $3.00.





The HOWE Spotlight Is Spring Controlled

The spring-controlled bracket of the Howe Spotlight is an exclusive feature of instant appeal. While two coil springs hold the turning joints in a firm grip and take up road shocks and wear, the Howe turns easily and direct to the spot where the light is wanted without sticking, binding and locking. Jars and vibration cannot shake it loose. No matter how long it is used, the Howe never flops around or rattles. This sure-grip bracket is hollow, thus protecting the wires and preventing short circuits.

The Howe, in fact, is a spotlight of many appreciated features. It can be detached for use as a trouble lamp by loosening a single set screw. The Tiffany-finished reflector gives perfect illumination at all distances. The design is streamline. Mazda bulbs are standard equipment.

The Howe now retails for $6.50, $5 and $4, the price varying according to size and design.

THE MARK OF HOWE IS THE STAMP OF QUALITY

HOWE MANUFACTURING COMPANY, Chicago, U. S. A.

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THIS MEANS S[illegible]GE-PROFIT

BETTER than anyone else, Mr. Dealer, you know that the day of the makeshift cranking and lighting systems for Ford cars has passed, never to return.

You know it, because you have seen with your own eyes the unsatisfactory work-out of cheap John equipment.

You know it, because with your own ears you have heard Ford owners emphasizing in no uncertain words their unqualified disgust with the ordinary starting and lighting mechanism.

And there is, in truth, neither honor nor lasting profit in representing anything but the best in Ford starting and lighting systems.

Inevitably, that brings you square up to the Heinze-Springfield.

Beyond argument it is the leader of all Ford cranking and lighting plants. It's the system eventually selected by all dealers who, like yourself, appreciate the good will of customers, and are carefully building their business now with the definite object of maintaining leadership by outstripping all competition.

HEINZE-SPRINGFIELD
CRANKING AND LIGHTING SYSTEM
FOR FORD CARS

Let us present the complete details of our agency proposition. Send in the coupon to-day—it will have our immediate attention.

A Few Heinze-Springfield Superiority Points

1. A Two Unit, Six Volt, Single Wire Cranking and Lighting System, Bendix Drive. 2. Nothing visible with hood closed. 3. No interference with engine accessibility. 4. Installed complete in four hours. 5. No power drain on motor. 6. Patented mounting plate and chain adjustment insures quietness. Prevents broken chains. 7. Highest quality, most compact, most convenient combination Dash Switch, Ammeter, and Dash Lamp.

THE JOHN O. HEINZE COMPANY
SPRINGFIELD OHIO U. S. A.

Heinze-Springfield Cranking and Lighting System for Ford Cars

The John O. Heinze Company, Dept. C, Springfield, Ohio, U. S. A.

Gentlemen:

Please send me complete particulars regarding your dealer's proposition.

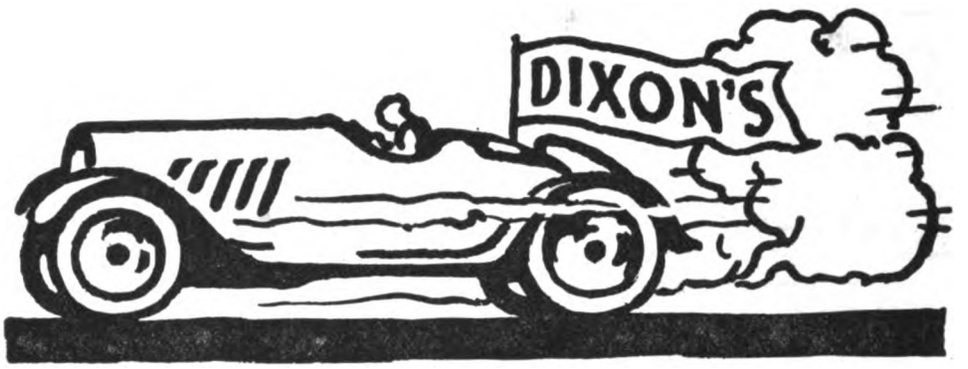
Name _____

Address _____

_____

When writing advertisers please mention Motor World—it identifies you.

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Keeping Ahead

You dealers who would keep your business constantly growing must keep step with the greater needs of your customers.

These are the times when dependability is in demand more than ever before—dependable men, dependable materials, dependable motor cars, tires, lubricants.

DIXON'S GRAPHITE Automobile LUBRICANTS

give your customers the kind of *service they must and will have.*

Dixon's stop Friction and make the Dixonized car run better, quieter, smoother, farther per gallon of "gas."

Dixon's stay put. The Dixonized car requires less frequent attention.

The satisfactory performance of the car that is Dixonized swells the sales of the far-sighted dealer who double-teams with Dixon's in giving service.

Write for our interesting "Dixon's Dealer's Deal" No. 111-G.

"The graphite is the reason"

JOSEPH DIXON CRUCIBLE COMPANY

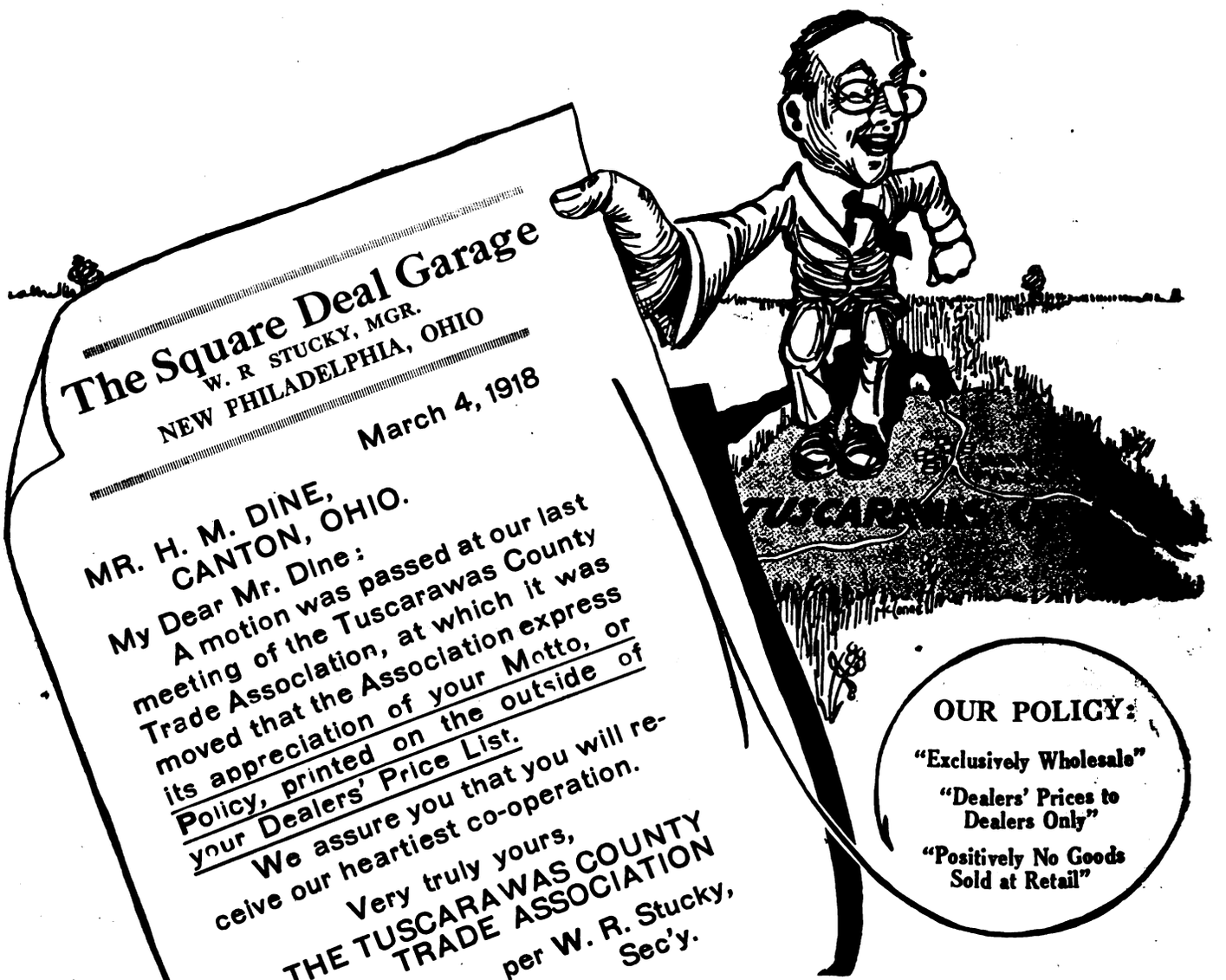
JERSEY CITY, NEW JERSEY

Established 1827

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Another County Heard From!

This is one of the many evidences we are receiving that our stand for Clean, Fair, Co-operative Business Methods is appreciated and warmly endorsed by our fellow business men.

And that's the sort of thing that's going to win this battle! If we all stick together and help—insist on dealing only with such men as play fair and work for the real good of the whole trade—**everybody** will benefit by it.

And we'll put the everlasting Kibosh on all Double-Dealers, Four-Flushers, Near-Jobbers and Almost-Manufacturers who have been cluttering up the Accessory Business.

If you are a dealer, within 200 miles of Canton, and like our policy, let's get together!

We Handle Quality Lines

EVEREADY
Storage Batteries, Starters, "Daylos"
GLOBE
Air Compressors
KURTZ
Piston Rings
TUNGAR
Rectifiers

THE DINE-DEWEES CO.

Exclusive Wholesalers and Distributors of
Automotive and Garage Equipment. Electric Specialties

CANTON — OHIO

When writing advertisers please mention Motor World—it identifies you.

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Garford MOTOR TRUCKS

The Aggressive Dealer Must Face These Facts *Now!*

Face facts as they are today.

World warfare has established the motor truck for all time.

We are dealing in essentials.

And business recognizes the motor truck as a necessary factor in commerce.

Now is the time to be a Garford dealer.

Garford Motor Trucks are backed by years of sound manufacturing policy.

They are serving all forms of industry *dependably*.

Garford economy, stamina, and power are *known* and recognized.

Garford standards are the highest and their sound sales policy stands securely behind you.

With this kind of backing *your success is certain!*

You can build for permanent and profitable business with Garford Motor Trucks.

Because you are dealing in *known* values—Garford values.

This is the *strategic* time to sell Garford Motor Trucks.

Do not delay. This is the crest of opportunity for Garford dealers—Be one.

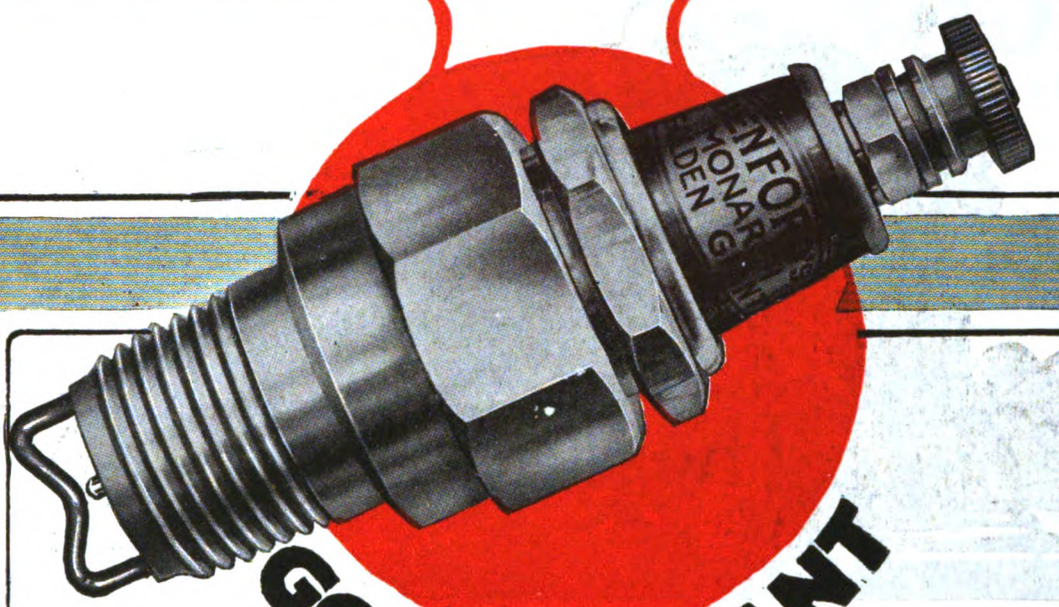
Wire us.

THE GARFORD MOTOR TRUCK COMPANY, Lima, Ohio

Manufacturers of Motor Trucks of 1, 1½, 2, 3½, 5 and 6 ton capacity. 4½, 7 and 10 ton Tractors
The Garford Road Builder

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BENFORD'S



The Insulator Makes a Spark Plug

A SPARK plug is only as good as its insulator—and the blue adamant insulator is the great contributing feature to the success of the Golden Giant.

The manufacture of this insulator entails processes undreamed of by the ordinary maker of "ordinary" plugs. It includes refinements of electro-chemistry beside which the compounding of ordinary insulating materials is child's play. Our blue adamant is our own formula—and it must stand up under heat far beyond that which can be generated by any motor. And when it is ready for assembling into the Golden Giant it must be too tough to crack under even extraordinarily careless treatment.

Its use in the Golden Giant is certain insurance that all the electricity an ignition system can generate is delivered to the electrodes without loss.

The modern car deserves nothing less than the best in spark plugs—and the blue adamant insulator of the Golden Giant clinches its title to leadership of quality plugs—the others make no difference—

Buy at least one from your dealer now—

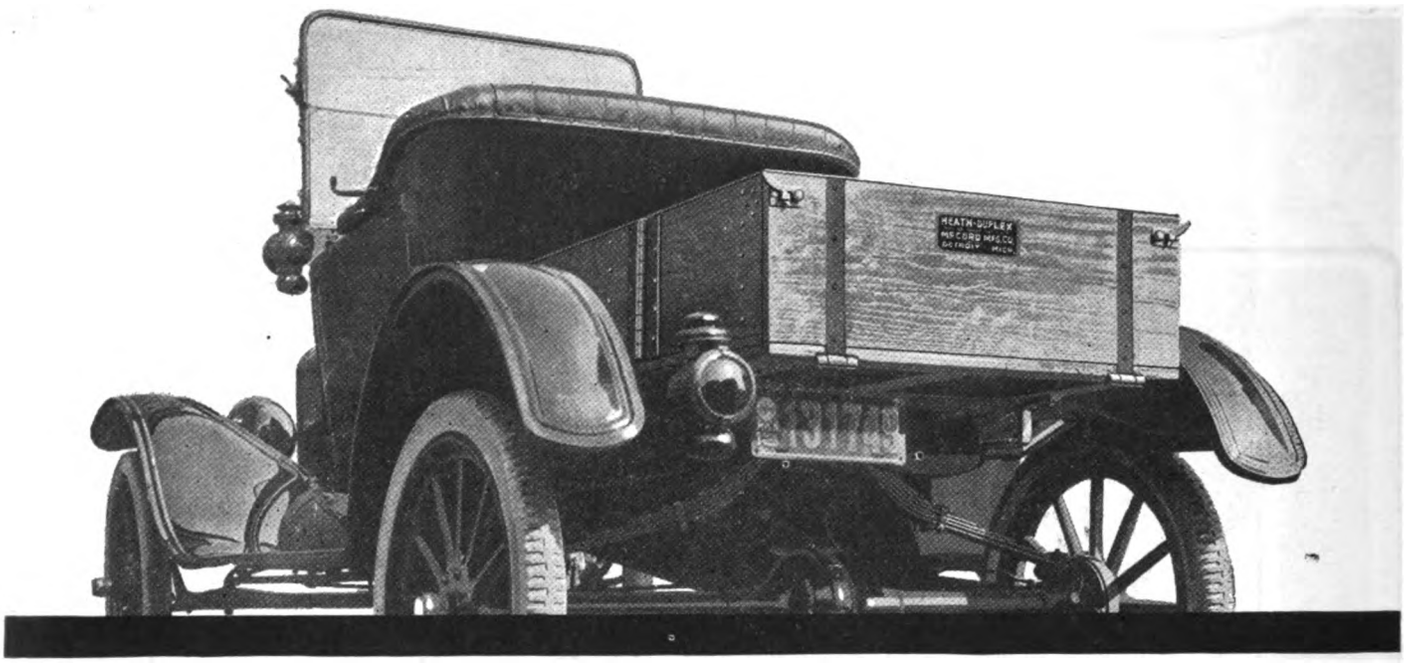
You'll want the whole set later.

Dealers: Get the 50-plug assortment from your jobber—and get the handsome Golden Giant display case, too.

BENFORD MFG. CO., Mt. Vernon, N. Y.

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Every Owner of a Ford Touring Car A Live Prospect



Heath Duplex

PATENTED MAY 12 1908, DEC 19 1916

Dealers throughout the country have been quick to realize the selling opportunity of the Heath DUPLEX.

With the campaign for national distribution scarcely a month under way, business has exceeded our most optimistic forecast.

These dealers know that over half of the Ford owners in their territory use their touring cars for carrying goods.

They have found out that every Ford owner who makes a regular or even a casual use of his car for business purposes wants this inexpensive, practical device as soon as he sees it.

They have already seen the natural demand for the Heath DUPLEX intensified by the complete campaign of national and local publicity behind it.

Every day sees considerable additional territory closed on the rights to sell the Heath DUPLEX.

If your territory is still open, we know you will be glad to learn the details of our attractive selling agreement.

From a Ford to a Truc in 60 Seconds

Lift off the Ford tonneau. Open up the Heath DUPLEX. You then have a staunch, strong delivery car.

Fold up the Heath DUPLEX, put back the tonneau, and you have the original Ford touring car.

Either change takes one minute. No tools are required. Fits old or new Ford touring cars.

In making the original installation the tonneau is made removable. Thereafter it can be slid on or off, while the front seat remains undisturbed.

The delivery body has a carrying space 4 feet 4½ inches long, 32 inches wide and 10 inches deep.

When passenger use is required the Heath DUPLEX is folded up without any visible sign of its truck utility. It does not alter the appearance of the passenger car.

McCord Manufacturing Co., Inc.

Division A **DETROIT**

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HENNEY
RURAL EXPRESS BODIES
FOR FORD MODEL T AND ONE-TON CHASSIS

Unequalled Dealer Opportunity

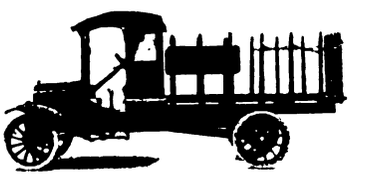
DEALERS! Read the handwriting on the wall. Local embargoes on foodstuffs caused by inadequate transportation facilities are causing the establishment of Rural Motor Express Services from farms to cities throughout the United States linking the farm and market.

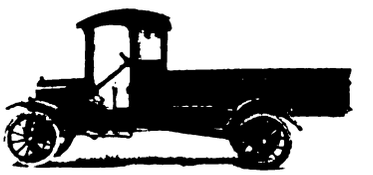
Henney Rural Express Bodies for Ford One Ton Truck and Model T Chassis, to carry milk, eggs, poultry, fruits, calves, garden truck and crops to the nearby market and return with coal, lumber, groceries, etc., for the farm, offers you unequaled opportunities. Both the Henney Express Body and the Ford Chassis under the severe test of day in and day out service, under all kinds of loads and in all kinds of weather, have clearly established themselves as useful and economical methods of transportation.

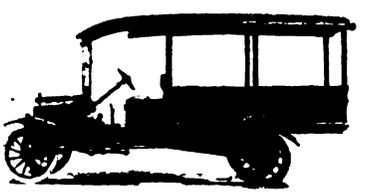
Henney Bodies are built of the best materials and workmanship—carefully selected, seasoned, kiln-dried hardwoods being used for the sills, floors, frames and parts, and the bodies are heavily ironed at every point of strain and wear.

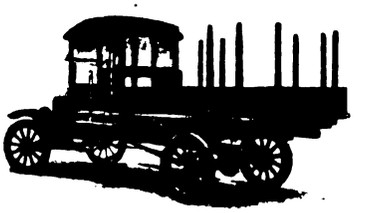
Our 21 branch houses throughout the United States offer real service and large profits to you, allowing you to make immediate deliveries from our full stocks with very little outlay of capital.

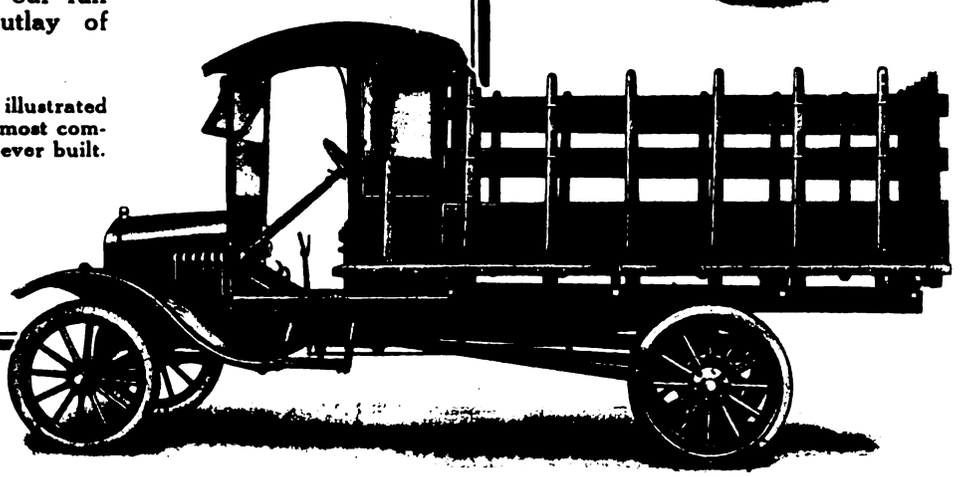
Write today for our new illustrated catalog, showing the largest and most complete line of commercial bodies ever built.











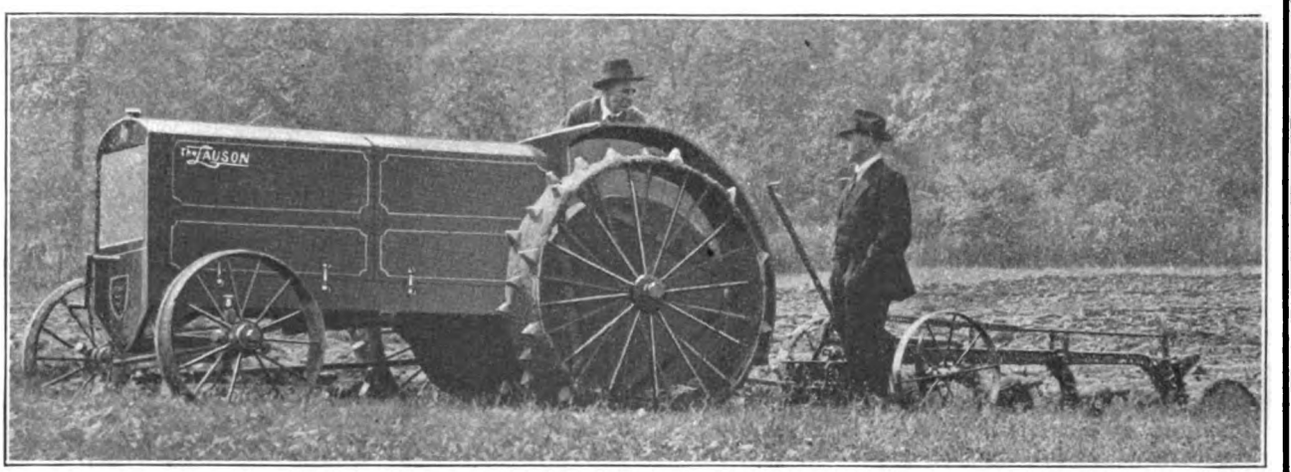
FACTORY:
FREEPORT, ILL.

HENNEY BUGGY BRANCH - MOLINE PLOW CO., Moline, Ill.

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The LAUSON 15-25

DUST PROOF-ALL GEARS ENCLOSED



DEALER—"Well, Mr. Smith, how's your LAUSON working—?"
FARMER—"Fine. Couldn't be better. You did me a real favor when you sold me a LAUSON 15-25. It works as easily as an automobile and has a reserve of power that makes me feel confident in my tractor and its ability to give continued service."

The above is the kind of conversation the dealer likes to have when he has sold a tractor.

The LAUSON 15-25 is the kind of tractor that brings forth this kind of recommendation from the user. It has built into it that perfection and power which means that no matter how hard the service it is put to, it will prove up with unqualified success all the claims we make for it.

There is little satisfaction for the dealer in selling his customers a tractor—or, for that matter, any other kind of machinery—which will continually break down and cause expense, delay, annoyance and a bad feeling which you cannot afford in your business.

The LAUSON is free from annoying break-downs and service troubles because it is built right by men with over twenty-three years of successful farm engine manufacturing experience. All it needs is reasonable care and attention.

It is standardized, unit assembly and accessibility throughout. It is dust-proof, all gears being enclosed, thus eliminating the friction which wears away the finest machine.

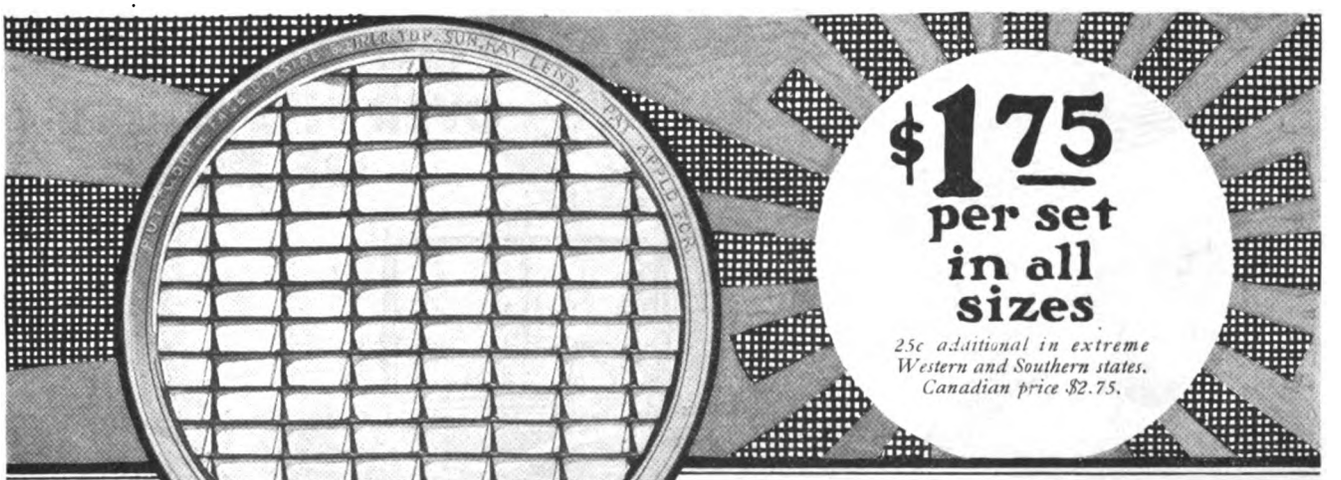
Check the specifications and see if the LAUSON is the tractor with which you would like to be associated. Then write for our interesting dealer proposition, as we still have some territory open and would like to get in touch with some dealers and distributors who can qualify for the LAUSON organization.

Specifications

Rating—Draw-bar H.P. 15; Belt H.P.25.
Engine—4½-inch bore by 6-inch stroke. Valve in head.
Number Cylinders and Cycle—Four.
Normal Speed—R. P. M., 950.
Lubrication System—Splash and force feed.
Ignition—Dixie Magneto.
Carburetor and Fuel System—Kingston Gravity Feed.
Cooling System—Perfex Radiator.
Belt Pulley—18-inch face by 8½-inch; 475 R. P. M.
Transmission—Lauson Selective Type—sliding gear.
Number Speeds Forward—Two.
Speed, M. P. H.—Low, 1¼; plowing, 2½; high, 2½.
Number Wheels—Four.
Drive Wheels—54-inch diameter; 12-inch face.
Guide Wheels—32-inch diameter; 6-inch face.
Wheelbase—86-inch.
Tread—52-inch.
Total Weight, less fuel, water, oil and lugs—5,750 pounds.
Shipping Weight with Standard Equipment—6,000 pounds.

THE JOHN LAUSON MANUFACTURING COMPANY
352 Monroe Street **NEW HOLSTEIN, WIS.**

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The Sun-Ray Lens

—"relative to the efficiency of Sun-Ray lenses;—we have tried them all from the cheapest to the most expensive, and have found Sun-Rays the *best* and *easiest* to sell."

That's what the Savage and Love Company of Rockford, Illinois, says.

And what's true in Rockford, Illinois, is true in any other part of the United States where automobiles are to be found.

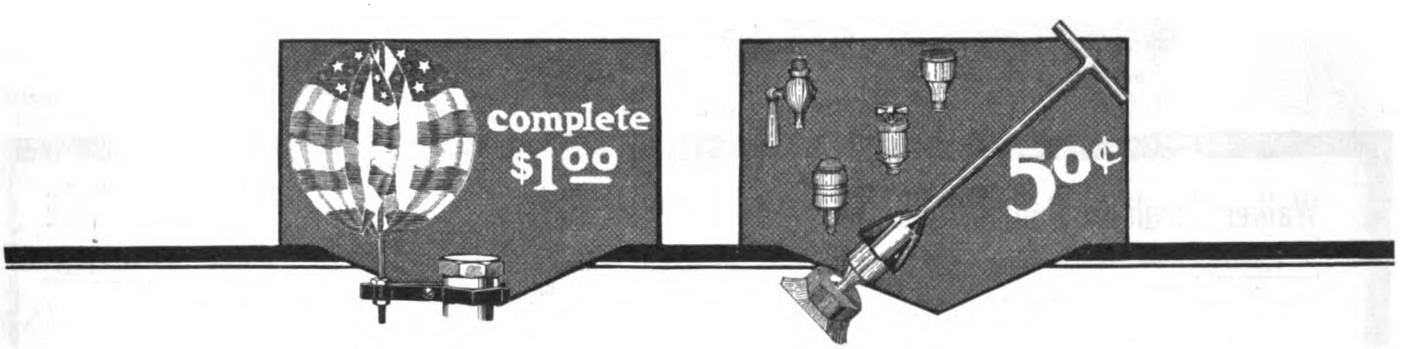
Sun-Rays are selling *everywhere* because they are *right*. They give you everything you require of a lens—refraction *and* diffusion,—with plenty of light where you want it. They meet every law.

Yet in spite of all their advantages Sun-Rays are priced at only $1.75 a pair *in all sizes*.

There's money in selling such a lens—good, cold, hard, money—and the sooner you dealers realize it, the sooner you will be getting your extra profit.

We'll be glad to talk business with you —*now*. Get in touch with us.

THE PRISMOLITE COMPANY, Columbus, Ohio

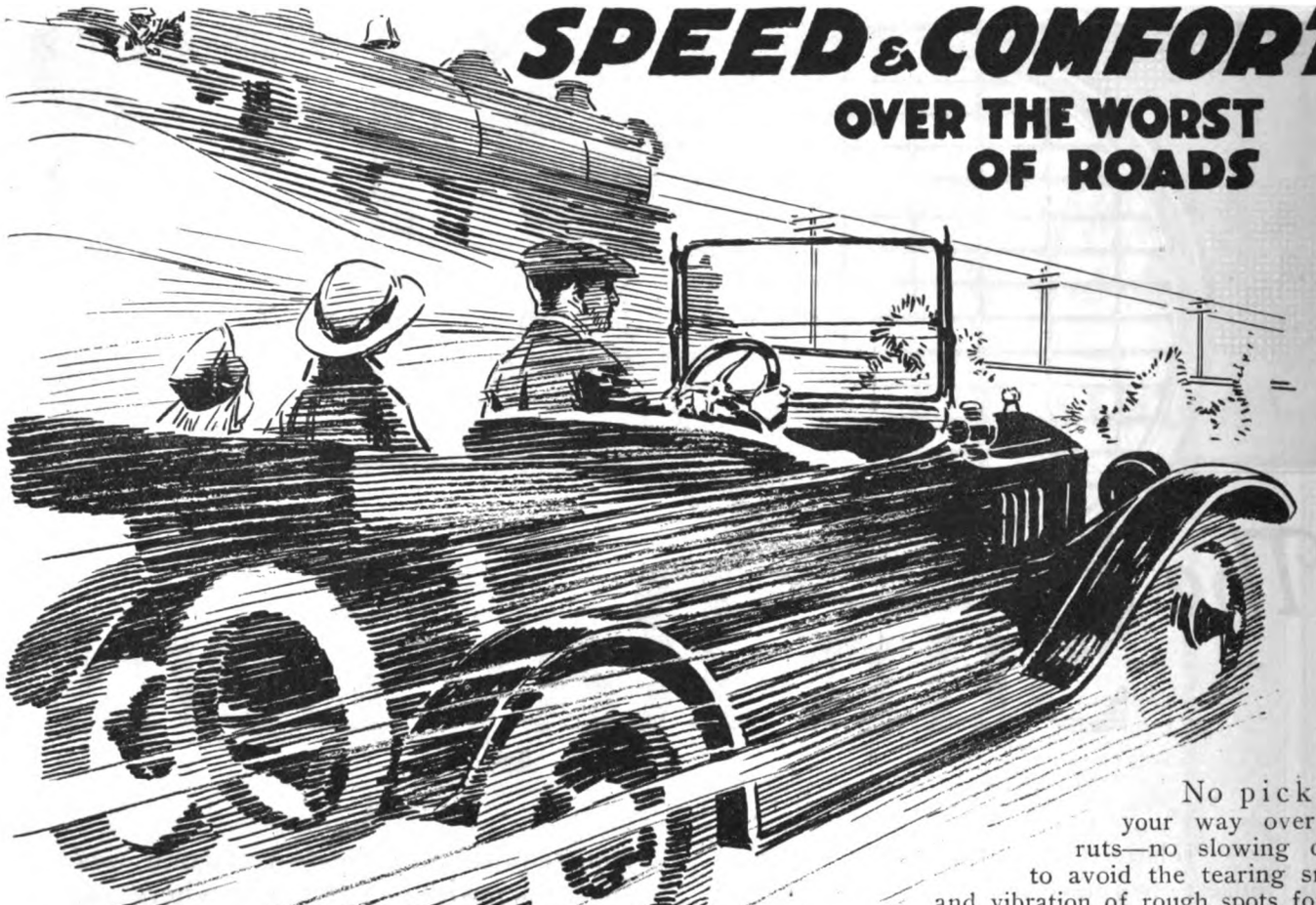


The Whirlyflag. *Here's a little novelty that has spread over the country like wildfire. It is made of enameled metal in either the Stars and Stripes or British Union Jack design. Fastens on radiator cap, bicycle or motorcycle. Attractive discount to dealers.*

The Universal Grease Cup Wrench. *Motorists everywhere have been quick to appreciate this handy tool. It takes care of grease cup, pet cock and water cock adjustments quickly and easily without soiling the hands—even in the most "out-of-the-way" parts of the car. Advertising material furnished with orders. Special terms for dealers.*

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SPEED & COMFORT
OVER THE WORST OF ROADS



No picking your way over the ruts—no slowing down to avoid the tearing smash and vibration of rough spots for the driver whose Ford is equipped with Walker Steelbilt double arm cantilever Shock Absorbers.

Walker Steelbilt Shock Absorbers for Fords are all that the name implies—*Shock Absorbers.* They smooth out the roughest going—soak up the shocks—cradle a Ford in an easy big-car sway. They protect the car. Protect its occupants. Then protect *themselves.*

Built entirely of steel. Absolutely unbreakable. Wear-proof. Outlast car—and add to *its* life. Spring extra long—oil tempered—greatest elasticity—with utmost durability. Spring bolts turned from cold-rolled steel and hardened—equipped with oilers. Free unhampered action given to both coils and leaf springs. No sliding parts. No sign of a squeak. No breakage. Thoroughly safe. Strong as steel can be in *every* section. *Big saving in Cost* over inferior devices. Only $7.50 per set of four.

Complete. Ready for immediate installation. No holes to bore. No special tools. No trouble. Guaranteed satisfactory in service. Tremendous demand. Write for prices and descriptive matter.

WALKER STEELBILT SHOCK ABSORBERS FOR FORDS



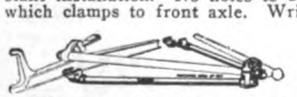
$7.50
Per Set of Four

WALKER MFG. CO.
33 Hamilton St. Racine, Wisconsin

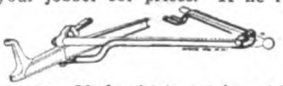
Walker Auxiliary Radius Rods for Fords

Big Market. Ready Demand. Quick Sales. Good Profits. **Stocked by nearly all Jobbers. If yours can't supply you write us. Fully covered by Patents. Don't buy infringements and invite trouble.**

PATENTED Walker Auxiliary Radius Rods for Fords act as reinforcement for regular Ford Radius Rod. Brace front axle. Keep it straight. Abolish bending and breakage. Ready for instant installation. No holes to bore. Clamp right onto rear of regular rod—fasten to axle—employing regular Ford Perch bolt except 701, which clamps to front axle. Write your jobber for prices. If he refuses to quote them, write *us.* PATENTED



No. 701—made of solid ¾-in. steel rods. Malleable clamps. Weight 12 lbs.



No. 702—Made of 1-in. x 1-in. x 3/16-in. angle iron. Weight 8 lbs.

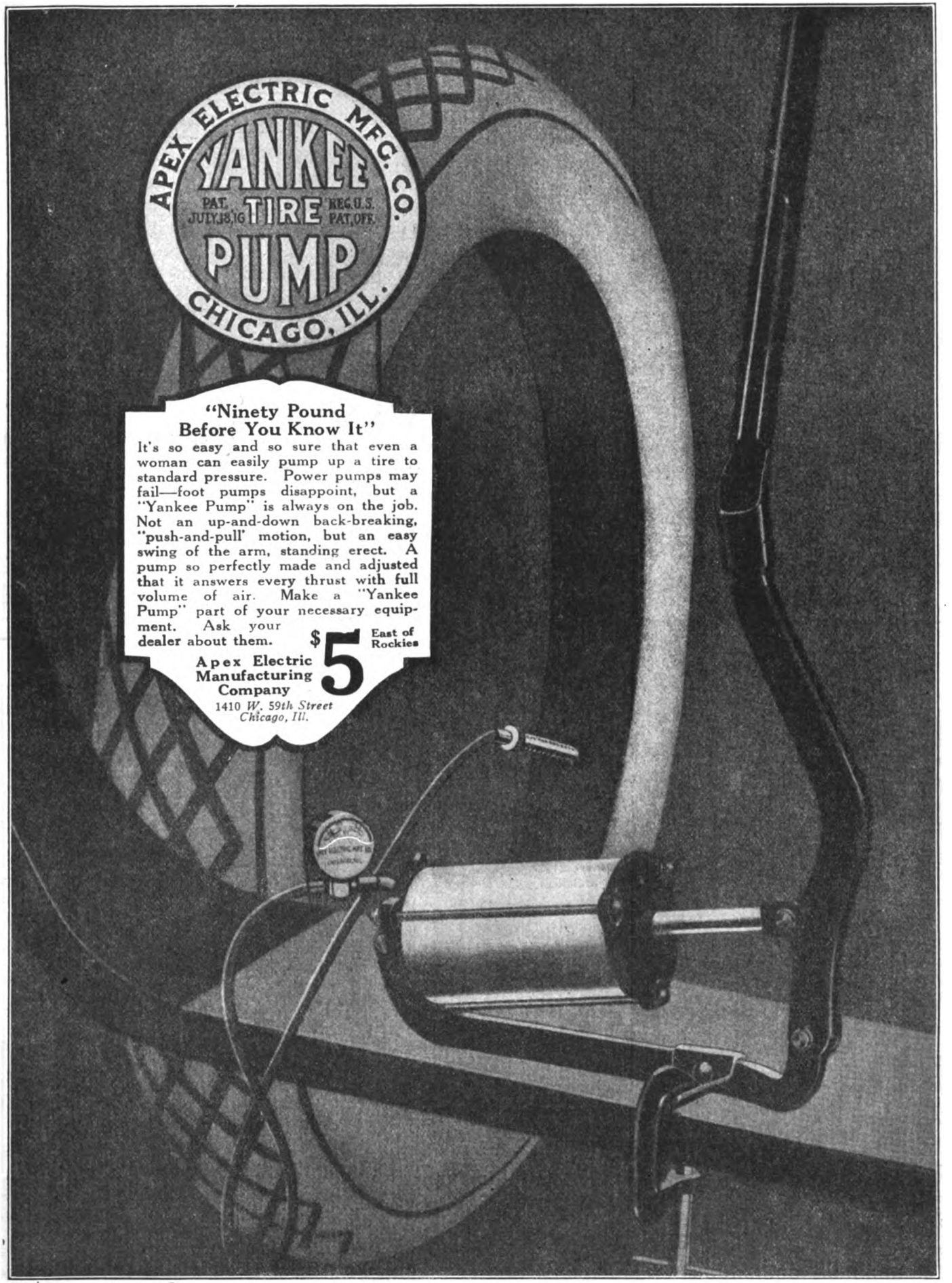


No. 703—Made of 1-in. x 1-in. x ⅛-in. angle iron. Joined arms. Weight 5 lbs.

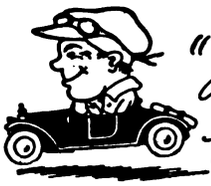


No. 704—Made of ½-in. tubing. Malleable threaded clamp. Weight 5 lbs.

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"The Motorist who is Brunnerwise knows Brunner Service Satisfies"



WE USE A BRUNNER AIR COMPRESSOR
FREE AIR
FOR YOUR CONVENIENCE

He knows because he has always found Brunner Service thoroughly dependable and for that reason he recognizes the Brunner sign as a sure sign of high-class, unfailing service—that is why thousands of Brunnerwise motorists patronize the garages displaying the Brunner sign—the service satisfies.

The Brunner Air Compressor was designed for the garageman's special use and has been consistently making good in the garage ever since the garage business has been a business. Built in the largest and best-equipped plant in the world devoted to the exclusive manufacture of garage air compressors. No special mechanical attachments necessary to help the motor carry the load—no restriction of the lubrication to invite disaster—no wild claims of impossible results, but simply the same good substantial business proposition it has always proven for the garageman who buys it. Write for No. 15 catalogue and name of Brunner Jobber who covers your town.



BRUNNER MANUFACTURING COMPANY

Main Office and Plant: UTICA, N. Y. **Cincinnati Branch: CINCINNATI, OHIO**

S-M-C
Trade Mark Registered U.S. Pat. Off.

Keep every car running

every day—relieve congested transportation facilities. To keep the brakes safe, to avoid accidents and delays, use

S-M-C ASBESTOS BRAKE LINING

These letters S-M-C on a roll of brake lining mean Safety Made Certain—because every roll that bears them is closely woven of finest asbestos, with friction wire interwoven; then compressed to exact size by massive steel rollers after being treated with the S-M-C Special Compound, which resists heat, water, oil or gasoline.

Made in all widths up to 6 inches. Dealers, write for quantity prices

Staybestos Mfg. Co., 5536 Lena St., Philadelphia, Pa.

I want your quantity prices on S-M-C Brake Lining and Universal Transmission Lining—particularly on your $1.00 Ford Set.

Name.....

Address.....

City.....

State.....

UNIVERSAL

Trade Mark Registered U. S. Patent Office.

TRANSMISSION LINING

offers a remarkable business opportunity for live dealers

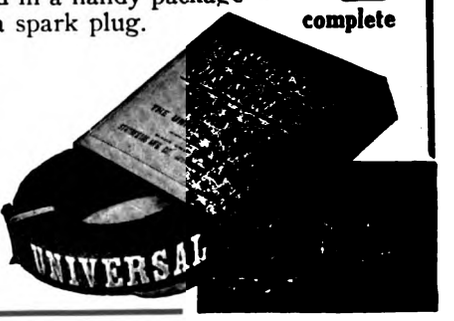
Because it is superior in service to any cotton lining heretofore produced. Quicker in action, as sure as it is speedy. Quiet—absolutely chatterless. Compactly woven like S-M-C, then treated with a perfected compound, which makes it slip-proof, water-proof and oil-proof.

SET FOR FORDS

$1 complete

includes three proper lengths for Ford transmission bands and all rivets required. All boxed in a handy package—as easily sold as a spark plug.

Get our quantity prices on this quick seller—it's a good leverage for the trade of the big Ford family.



STAYBESTOS MFG. CO.

5536 Lena St., Philadelphia, Pa.

The "Modern" Factory equipped to make all types of brake lining and all widths up to 6 inches.

When writing advertisers please mention Motor World—it identifies you.

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HERE ARE

The Present Conditions AND The Logical Conclusions

Business of this country demands and must have motor haulage as a war time necessity.

But the very lines of business—small manufacturers, merchants, farmers, etc., which need the speeding up effects of motor haulage the most are unable to pay the high prices which are now asked for motor trucks.

The truck attachment brought to its present high state of durability and efficiency solves the problem for both the business man and the dealer.

It gives the dealer an easy selling proposition on which immediate deliveries can be made in quantities. It provides the business man immediately with a fast durable adoptable truck at a cost he can easily afford to pay.

The wise dealer this year will push the product for which there is a wide spread demand—selling at a price low enough to make a big volume possible, and on which he can get immediate deliveries.

This describes the Detroit Universal Truck Attachment.

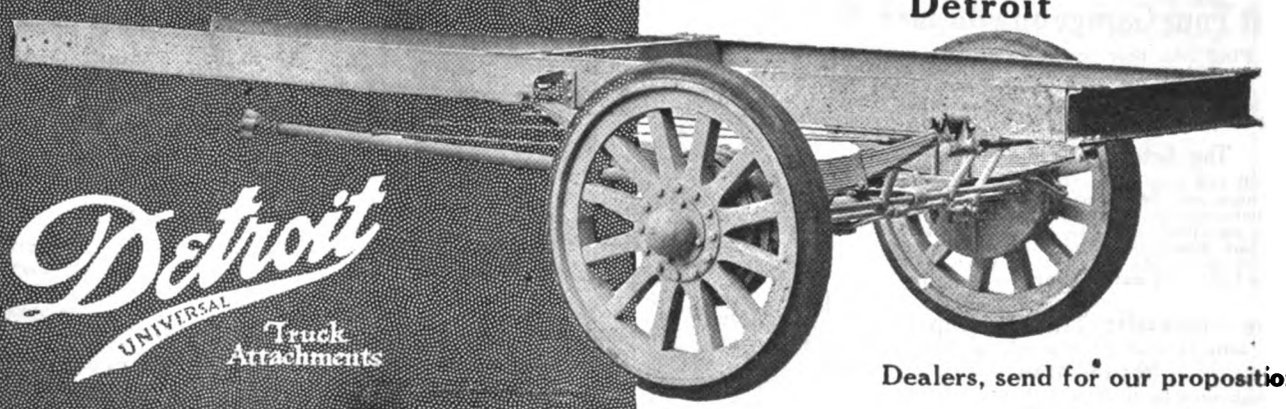
The famous Russell Internal Gear Axle, used in all models. Every part measures up to this same high standard of quality. Made by a company strong both personally and financially.

The most complete line on the market, running from a 1¼ ton model to a full three ton model.

Prices range from $400.00 to $675.00. Immediate Deliveries.

Dealers, write for our extremely liberal selling proposition.

Parkview Sales Company
1685 Gratiot Avenue
Detroit



Detroit UNIVERSAL Truck Attachments

Dealers, send for our proposition

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MP CABLES

For Lighting, Starting-Ignition

FORD ASSEMBLIES

Lamp Cord—Fuses—Bosch Parts

Write for Literature

MOTOR PARTS COMPANY, 845 No. Broad Street Philadelphia, Pa.

New York Boston Buffalo Springfield, Mass

OAKLAND SENSIBLE SIX

High power, light weight, splendid comfort and complete economy form the foundation of its success.

Prices: Touring Car, $1050; Roadster, $1050; Roadster Coupe, $1210; Sedan, $1250; Sedan (Unit Body), $1550; Coupe (Unit Body), $1550. F. O. B. Pontiac, Michigan

OAKLAND MOTOR CAR COMPANY, PONTIAC, MICH.

KOL-BEN

THE DIFFERENT WIRE WHEEL



Wrench is only tool required. Locks or unlocks with ¼ turn. Positive lock—anybody can easily change wheels.

The many distinctive features of the Kol-Ben wire wheel make it easiest to sell, and every user becomes an enthusiastic booster. Kol-Ben wire wheels add comfort, safety and convenience. Impossible to run off or back off, put on or removed in 6 seconds, has four more spokes than any other wheel of same size, extra strong lacing and the special rust-proofing process insures a lasting finish. Get the details of our liberal dealer proposition.

KOL-BEN WHEEL CO.

DETROIT U. S. A.

SPRINGS

FOR

K-W ROAD-SMOOTHERS

ALSO BUSHINGS

We repair any starting, lighting or ignition system and use only GENUINE PARTS. Factory service by former factory experts.

Cleveland Ignition Co., 2026 E. 22nd Street Cleveland, Ohio

OFFICIAL SERVICE

MAGNETOS—ZENITH CARBURETORS

Russel

MASTER OF ROAD AND LOAD

Internal Gear Drive Axles

Russel Motor Axle Co.

North Detroit

Jordan Motor Car Company

Cleveland Ohio

THE LAIDLAW CO., Inc.

16 W. 60th Street New York City

Automobile Fabrics

A Fabric for Every Purpose for Open, Closed and Convertible Bodies

Put Your Garage on a Business Basis

Find out how much each job costs in actual time—don't guess—you can't make a success that way. Know what time a piece of work starts and know what time it is finished.

The Automatic Time Stamp

will tell you instantly and accurately. There can be no argument with your customer—you have the proof stamped in legitimate figures. The Automatic Time Stamp is simple, inexpensive and will last a life time. Don't wait, write us today for sample cards and data.



The Automatic Time Stamp Co.

Automobile Dept., 161 Congress St. Est. 1880

Boston, Mass.

Originators of the Art of Printing Time Automatically

The ESTA WATER AUXILIATOR

Delivers to the heart of a gasoline engine the stimulant of oxygen so necessary to absolute combustion of every particle of fuel. It prevents the formation of carbon and gives the motor more power, new life and greater responsiveness.

Write for our dealer proposition

THE ESTA CO., 103-107 Massachusetts Ave., Boston, Mass.

First National Bank Bldg., Chicago, Ill. 2010 Broadway, New York City

Distributors:

CONSOLIDATED SALES CO. ..... San Francisco, Cal.
T. SCOTT EAVENSON ..... 1108 Harrison Bldg., Philadelphia, Pa.
C. W. EDWARDS CO. ..... 3947 Laclede Ave., St. Louis, Mo.
GEORGE E. LA VIETES ..... 1834 Broadway, New York City
SAMSON MOTOR CO. ..... 416 North Craig St., Pittsburgh, Pa.
SANFORD BROS. ..... Chattanooga, Tenn.
ERWIN F. STEITZ ..... 302 Mayer Bldg., Milwaukee, Wis.

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The Present Motor Car Situation Means a Demand for Warner Auto Upholstery Covers

WARNER AUTO UPHOLSTERY COVERS

FOR CLEANLINESS
COMFORT — ECONOMY — STYLE

Many automobilists are dressing up their present cars so they will look presentable for another year. They want Warner Auto Upholstery Covers.

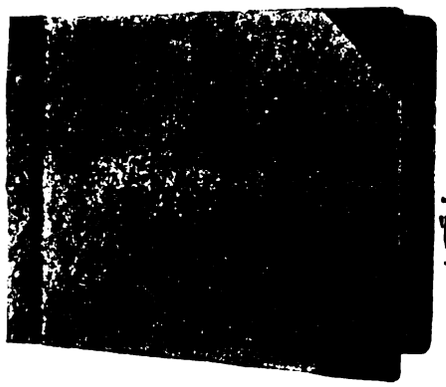
Men who are investing in new cars are resolved to make these cars last longer than any they ever owned before. They, too, want Warner Auto Upholstery Covers.

Men who are buying used cars instead of paying the increased price which new cars are bringing want their purchases to look like new. They also want Warner Auto Upholstery Covers.

Because Warner Auto Upholstery Covers make motor cars look dressier and conserve motor car value, they are in greater demand now than ever before.

Let us show you how you can increase your business and profit and add to your list of satisfied customers by pushing the sale of Warner Auto Upholstery Covers.

The Warner Auto Top Company, 1640-1644 Central Ave., Cincinnati, Ohio



Business Records Must Now Conform to Law

THE revenue act gives the Treasury Department authority to enforce keeping of accurate records in every business that pays taxes under this act.

This System Is Complete

This System consists of three forms, all in one binder.
1—Cash Received and Sales Record.
2—Cash Paid and Expense Record.
3—Customers' Accounts.

MOTOR WORLD'S SIMPLIFIED SYSTEM OF ACCOUNTING

See Everything at a Glance

COMPLETE INSTRUCTION BOOK shows you exactly how to use it—you don't have to know anything about bookkeeping. Over 1500 Garage, Repair and Supply men using it now.

This in itself is a powerful argument for Motor World's Simplified System of Accounting. But, aside from this, every automobile and accessory dealer or garageman needs just such a system to give him vital facts concerning his business from day to day. His business of today is not what it was yesterday. The war has influenced business to such an extent that *accurate* records are absolutely necessary. This system was perfected by seven of the country's foremost merchandising experts.

Motor World's Simplified System of Accounting gives you all the information you want at a glance. Not a jumbled mass of facts and details, *but* a clear, concise history of your business. As this system requires a *minimum* amount of clerical work, it saves its cost in a short time. It will fit in with existing systems *as they are* in *your business.*

Price $15.00. Sent on 5 days' approval. If you would do without this system after looking it over send it back and your money will be refunded. You take no chances in ordering this system. Send in your order today.

TALLMAN, ROBBINS & COMPANY

Exclusive Authorized Manufacturers of Motor World Simplified System of Accounting

316 W. Superior Street, CHICAGO **320 Broadway, New York**

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SAVE TIME!



and Do Better Work With Less Effort

Also, you save many a broken bit by using this simple, economical, light and accurate drill.

THE B & D PORTABLE ELECTRIC DRILL

It is the fastest hand drill in existence, and is built for continuous hard service.

One of the biggest advantages about it is the trigger switch, which allows you to keep both hands on the drill and hold it steady right up to the time the bit breaks through. A pressure of the finger turns off the current.

Universal Motor (any current); Ball Thrust Bearings; Forced Draft Cooling System; Special Aluminum Alloy Housing. Fully guaranteed.

Write today for Full Particulars.

THE BLACK & DECKER MFG. CO., 107 South Street BALTIMORE, MD.

Canadian Distributors: Northern Electric Company, Limited, Montreal.
English Distributors: R. A. Rothermal, 8 Poland Street, Great Marlboro, London, Eng.

WHITNEY KEYS

For the benefit of dealers, garages, and repair men, we put up our keys in two assortments. Every garage and repair man should keep these on hand. They may be purchased from the leading jobbers or ordered direct from the factory.

REGULAR ASSORTMENT



One hundred keys of the sizes most likely to be required for repair work on Motor Cars, Motor Trucks and Tractors.



FORD ASSORTMENT

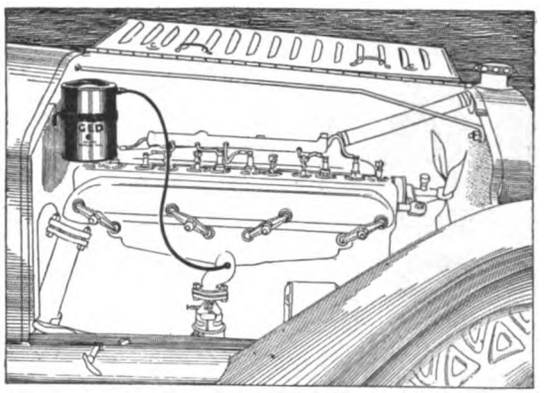


One set of keys for the Ford car. These keys are of the special material and special treatment specified by the Ford Motor Company.

THE WHITNEY MFG. CO., Hartford, Conn.

Chains **Keys and Cutters** **Hand Milling Machines**

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Easily Attached to All Types of Engines. Patented June 11, 1918.

The GED

Gasoline Economizer and Decarbonizer

combines

Auxiliary Carburetion and Humidified Air

securing

Complete Combustion
Saving of 25 to 40% in Gasoline
Decided Increase in Power
Removal of Carbon

The G E D acts continuously and automatically—has no moving parts to adjust, wear or get out of order. It is an investment—not an expenditure. It repays its cost over and over each season.

The G E D automatically supplies humidified air by the most improved and efficient method.

MOISTURE properly introduced with the explosive mixture, by the process of humidifying the air, is highly beneficial to engine operation.

This scientific fact is proven in practice by the decidedly improved operation of your car after night fall or in damp weather.

It is also an established fact that the free carbon formed is changed to gas by uniting with the steam into which the water vapor is converted at the combustion temperature. This gas is expelled by the exhaust and the cylinders are consequently kept clean.

In addition, the G E D automatically provides auxiliary carburetion, which further improves combustion and releases the maximum percentage of the heat value of the fuel—while with the incomplete combustion generally obtained a large percentage of the heat units are undeveloped and pass out through the exhaust as waste gases.

Excellent agents' opportunity—the G E D demonstrates and sells itself. Write for particulars.

$10 Delivered Anywhere in the United States

Order the G E D through your dealer—or mail remittance direct to us, and we will send you the G E D at once by parcel post.

ATLAS AUTO SPECIALTIES CORP., 2120 Broadway, New York City

DEALERS! MAKE BIG MONEY SELLING "Meteor" RACING BODIES FOR FORDS

Here is a combination sport-speed body for Fords with all the class, snap and beauty demanded by car owners who want a car of distinction and beauty. The Meteor body is marvelously beautiful with long, swerving, graceful lines that blend together to form a car that is conceded to be the aristocrat of the road wherever it goes.

"Meteor" RACING BODIES FOR FORDS

Any Ford car can be converted into a sport roadster that reflects the appearance of the high-powered, commanding roadster that costs several thousand dollars.

Every part of Meteor bodies is built to withstand excessive strains and vibration. There is no need to buy extra fenders and radiator, as the original Ford fenders and radiator can be used.

DEALERS' PRICE $59.95—LIST PRICE $150.00

PRICE INCLUDES PAINTING *FREE*—IN EITHER RED OR BLUE

The price of $59.95 includes body complete—painted with five coats of either Stutz blue or Stutz red—beautiful, rich upholstering of "Carter" leatherette—22 gal. gas tank with brass filler cap—new dash and floor boards—large, roomy tool box. Everything complete. Nothing extra to buy.

Here is the most sensational offer ever made to dealers. The Meteor body is so beautiful, so unusual, so attractive that the full list price can easily be obtained. Every Ford owner wants one when he sees it.

Send check, money-order or cash with your order and we will make immediate shipment of one of these beautiful bodies.

Remember, you can sell these bodies for $150.00 retail.



Central States Supply Co.
1619 Michigan Ave., Chicago, U. S. A.

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By This Brand You Know Them

L P C H O

HALLADAY BUMPERS

A BUMPER THAT FAILS WHEN YOU NEED IT IS WORSE THAN NONE AT ALL.

HALLADAY Bumpers
ARE MADE TO MAKE GOOD

They absorb and neutralize the shock with the least possible strain on the frame, springs and other parts of the car.

They are solidly built and accurately fitted, insuring stability, durability and freedom from noise and rattle.

Bear in mind—There is a HALLADAY BUMPER to fit the front and rear of every car on the road and wise dealers, who consider their own and their customers' interests, sell them.

L. P. HALLADAY COMPANY, Streator, Illinois

Well designed—built—finished

A well balanced car! Its stylish, modern body and ample roominess are linked with mechanical fidelity. A car you'll be proud of—a car with speed, quick action, flexibility. A car of low upkeep and economy—a car that will serve you long and serve you well.

ELCAR

Write for Catalog
Get all the particulars on this exceptional car value.

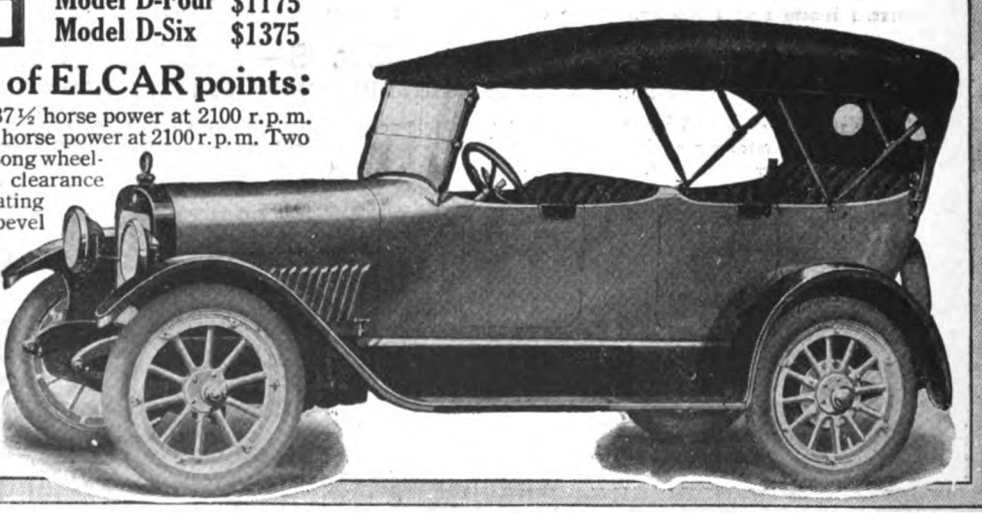
DEALERS
Our increased output enables us to offer this fast selling car to a few more live dealers.

Elkhart Carriage & Motor Car Company
C-779 Beardsley Avenue, Elkhart, Indiana

Model D-Four $1175
Model D-Six $1375

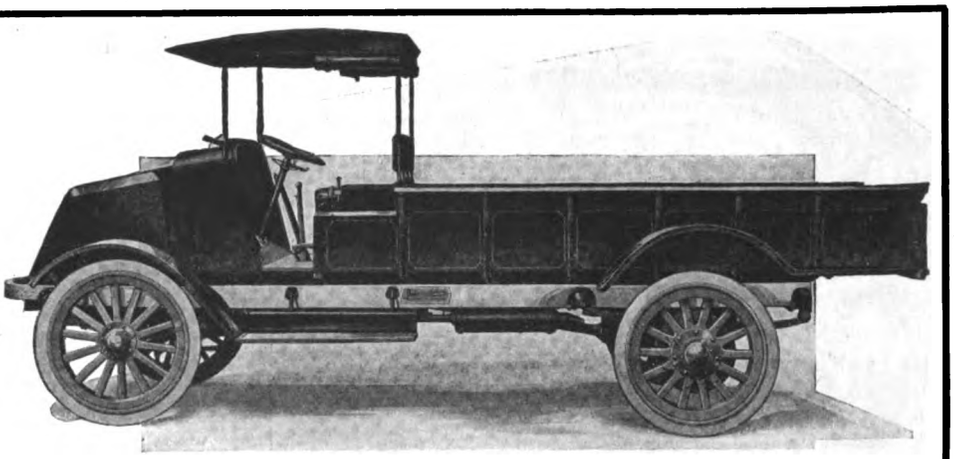
Brief mention of ELCAR points:

Four-cylinder models, 37½ horse power at 2100 r.p.m. Six-cylinder models, 40 horse power at 2100 r.p.m. Two unit electrical system. Long wheel-base, 116 inches; road clearance 10½ inches. Full floating rear axle with spiral bevel driving gears. Timken Roller Bearings front and rear. Double universal drive; tubular propeller shaft — a wonderfully easy riding semi-elliptic spring suspension. Roomy and comfortable bodies of beautiful design and durable finish, new "Cathedral Pipe" upholstering. Equipment complete, even to motometer.



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Join the Men Who Sell International Motor Trucks



This year men who sell **International Motor Trucks** will beat all previous records. On March 16th the sales of Internationals for 1918 had already passed the total 1917 dollars-and-cents mark. In this unusual year new and better methods cannot be kept down. Men who had been content with running in the old ruts before are being jolted out now, and every individual or firm now doing horse-and-wagon hauling is a prospect for an **International Motor Truck.** Many of these within reach of you are bound to buy trucks now. Who will do the selling?

Very soon the hot months will be here. Then, when horses fall down on hauling jobs, the thousands of **International Motor Trucks** in service will go on making and saving money for their owners, increasing a top-notch reputation, and making more sales for dealers.

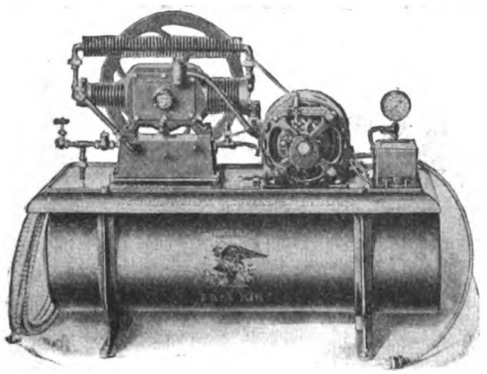
International Motor Trucks meet the needs of any and every firm with hauling problems to solve. They are made in 1,500, 2,000, 3,000 and 4,000-pound capacity sizes. Prices range from $1,550 to $2,650 for the chassis (cash f.o.b. factory).

Do you want a contract? Consider this proposition carefully. You cannot afford to do otherwise. Write us at once, for territory is being snapped up eagerly by dealers who realize the present and future value of an **International Motor Truck** contract.

International Harvester Company of America

(INCORPORATED)

155 Harvester Building CHICAGO U S A



Any One of the 20 U. S. Air Compressors A "Good Buy"

HERE is a machine that is wholly worthy of carrying the name United States, representing as it does the greatest possible attainments and incorporating all the highest refinements that mechanical ingenuity has been able to contrive.

The U. S. DeLuxe Two Stage Automatic Air Compressor is the kind of machine that is almost invariably bought when a desire to own the best and most efficient machine is the governing factor.

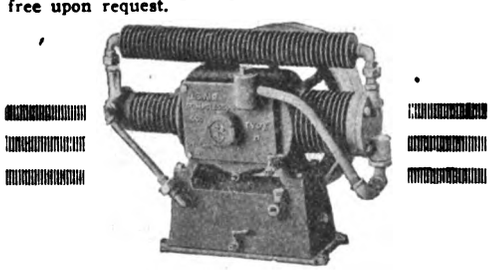
The DeLuxe exactly meets the needs of a majority of garages. It maintains high pressure in great volume, is extremely quiet in operation, handsome in appearance, entirely automatic in operation and requires only a minimum of attention to keep in perfect running order.

All U. S. motor-driven units equipped with Patented Unloader which prevents burning out of motors, slipping of belts, etc.

THE UNITED STATES LINE comprises 20 different numbers in TWO STAGE and SINGLE STAGE TYPES, and various individual equipment adapted for forming combinations of almost unlimited kinds and capacities.

Each machine is designed to fill a particular need and it will perform that service in a manner that is never excelled and seldom equalled.

Our catalog giving complete information will be sent free upon request.



U. S. TWO STAGE COMPRESSORS without tank, motor or controlling equipment can be furnished if desired, having tight and loose pulleys, as illustrated, or large single wheel for direct motor drive. Capacities 4, 10 or 20 cubic feet per minute.

THE machine illustrated below occupies the same position in the *Single Stage* field that has been attained by our DeLuxe unit in the *Two Stage* field.

The U. S. Single Stage Automatic Air Unit D22 will be found highly satisfactory for garages and free air stations where the volume of business does not seem to justify the purchase of our DeLuxe Unit.

This outfit is shipped completely assembled, piped and tested and will be ready to run when attached to lighting or power circuit, thus avoiding any expense for installation.



Please send catalogs advertised in Motor World.

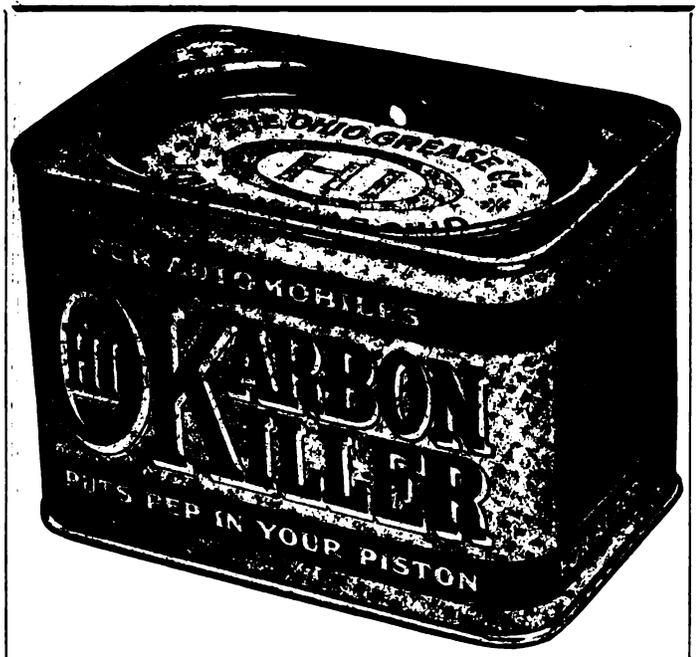
Name .....

Address..... City.....

The United States Air Compressor Co.

Carnegie Avenue, Cleveland

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Ohio Karbon Killer

Will promptly and effectually put an end to 90 per cent of your engine troubles.

This sure, pure and efficient product

Eliminates Carbon Deposits;
Keeps Spark Plugs, Valves, Pistons and Cylinders Clean;
Makes Motor Run Smoother and Easier;
Produces More Uniform Combustion;
Increases Speed, Power and Mileage;
Decreases Gasoline Consumption;
Prevents Knocking, Missing, Backfiring, Loss of Compression, and
Reduces Repair Bills.

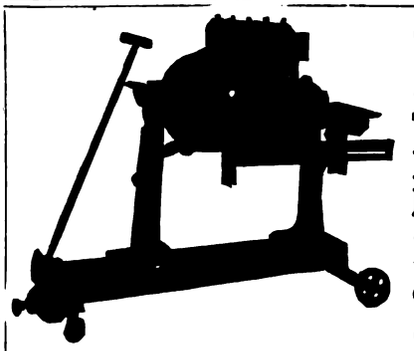
It is used in the gasoline—one teaspoonful to each 5 gallons. It's on the job every minute, and keeps your car in the pink of condition—ready to make a quick getaway at your slightest touch.

It sells at one dollar per pound, and a pound treats 480 gallons of gas. You need it badly every mile you travel—get some now. If your dealer can't supply you, send us his name and a one dollar bill—you'll get a can by return mail.

Mr. Dealer:—Better put in a stock of Ohio Karbon Killer, and get your share of this business. It has all other carbon remedies outclassed, and the demand is bound to grow. Write for dealer's prices, etc.

The Ohio Grease Co.

P. O. Box 122 **Loudonville, O.**



The Only Engine Stand THAT PROPERLY MOUNTS Every Type of Motor Suspension

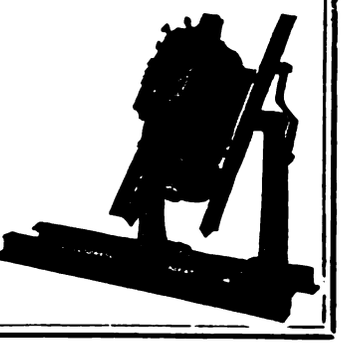
And supports it in *any* position, so that the workman may reach all parts with ease and safety.

The MANLEY "EVERY WAY" ENGINE STAND

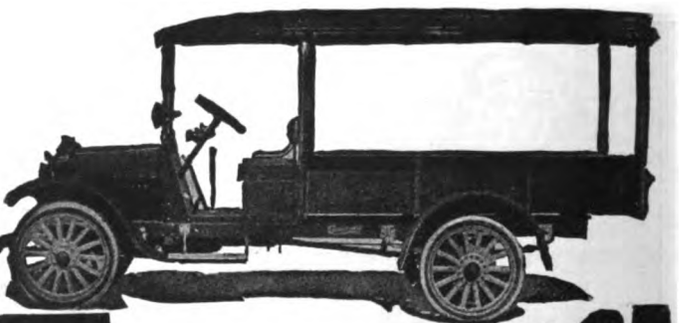
It can be anchored securely to the floor, or moved about the shop easily on roller-bearing casters, as occasion demands.

It can be adjusted to every position in a circle making it equally easy to work on valve mechanism, clean out carbon, grind valves, take up crankshaft, connecting rod, bearings, etc. In each position engine is rigidly locked by two side braces, leaving workman absolutely free and unobstructed. It supports the engine solidly, never gets shaky, and should last a lifetime without repairs. Prices (with complete equipment), Stationary, $48; Portable, $58.

For 4-point suspension, the brackets are bolted directly to cross arms, having 100 holes. For 3-point, adjustable cross bar shown in cut is provided.



The United Engine & Mfg. Co.
Hanover, Pa.



Commerce

1 Ton Trucks

A Year Ahead *of* Other Trucks

The only truck having everything necessary on it—when you buy it

Three types of bodies for all models—Bijur Starting and Lighting, with Dixie Magneto Ignition—Stewart Vacuum System—Pierce Governor—Windshield—Bumper.

Continental Motor (3¾x5)—Torbensen Rear Axle—Detroit Steel Products Company Springs.

One-Ton Chassis	$1340
With Express Body	1375
" *Post Top and Storm Curtains*	1450
" *Standard Stake Body*	1490

The Commerce Motor Car Company
DETROIT MICHIGAN

W. H. Brinkerhoff, Eastern Dist. Mgr.
Belmont Ave., Elmhurst, Long Island, N. Y.

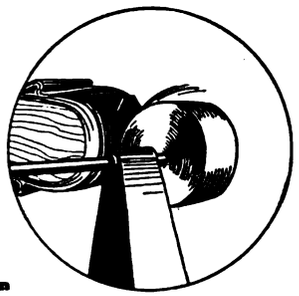
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100% Sales Increase

That's What the Famous Swinehart Emery-Wheel Test Did in 1917 for the Couch-Georger Tire Agency of Buffalo.

THE Emery-Wheel Test is the **strongest** selling argument **that any tire dealer can use.** It proves that the rubber in Swinehart Tires grinds down **slower than that of any other tire. See illustration.**



Think of the tires you can sell by being able to make such a statement to your trade, then

Write for Swinehart Dealer Proposition

SWINEHART TIRE & RUBBER CO., Akron, O.

Swinehart Tires SELL

Have You Had Trouble With Your Tires?

The fault is not with the tires. You, or your chauffeur, or both, are to blame. The responsibility is yours because you should keep the tires pumped up to a specified pressure, and don't.

Tires that are kept up to the proper air pressure last twice as long—sometimes ten times longer—than tires that are run with not enough air in them. Measure your air daily with a

SCHRADER UNIVERSAL TIRE PRESSURE GAUGE

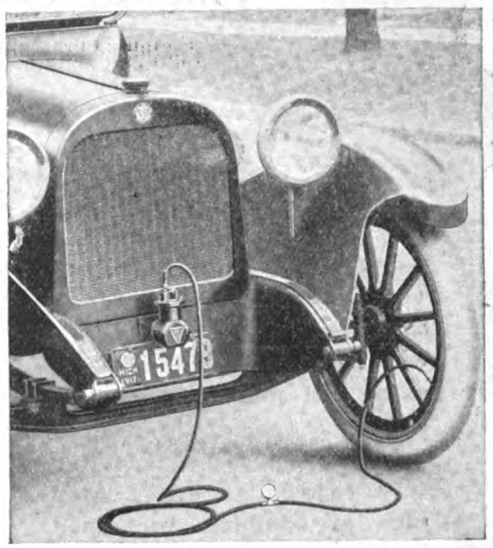
and get out of your tires all the miles they can give.

Price in U. S. A. **$1.25**

At your dealer or

A. SCHRADER'S SON, Inc.
783-803 Atlantic Avenue, Brooklyn, N. Y.





GEARLESS
DETROIT
CRANK-SHAFT
Tire Pump

Pat. Aug. 25, 1915

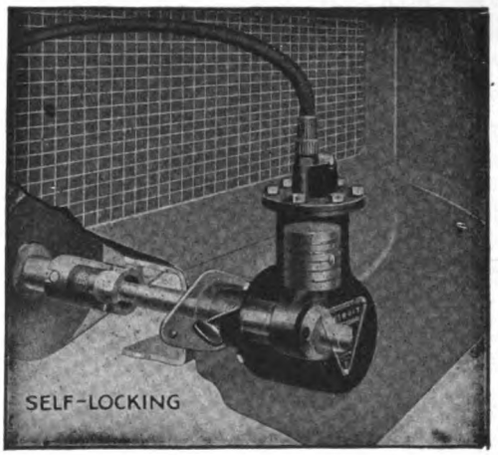
The mechanical principles of the Detroit Gearless were fixed after a long investigation and research covering the entire pump field. These principles are now acknowledged by authorities to be the only ones that are absolutely efficient for tire pump operation.

If there is a dissatisfied user of the Detroit Gearless, we have never heard of him.

On and off in a jiffy without tools. Not a rubber diaphragm device. Price $12.

WRITE FOR DETAILS

Detroit Accessories Corporation
520 Hillger Ave. Detroit, Mich.



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A TIP *from* **"JEM COE"** The Traffic Cop

CARS need Rear Bumpers even more than they do front ones—but how many have them? There's your big opportunity, Mr. Merchant. The motorist who has a front bumper is already **half sold** on a rear one. Point out to him the need of guarding his car against "the other fellow." Sell him on the idea of **complete protection, front and rear,** with

Gemco MILWAUKEE TRADE MARK

End Thrust Bumpers

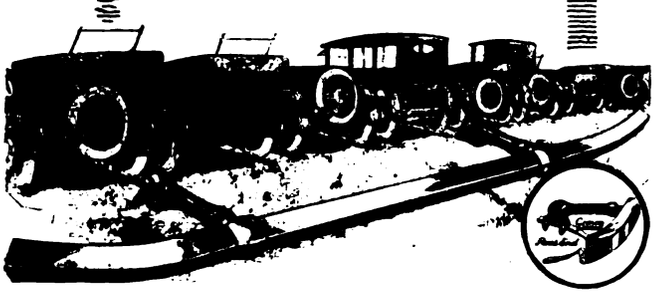
In the thousands of motorists who have not even a front bumper, the Gemco line offers you **double sale** business—two sales to a customer.

Motorists are bumped from behind every day and every bump sells a rear bumper **if you have it in stock.**

Gemco Bumpers come in Diamond and Channel bars to fit all cars.

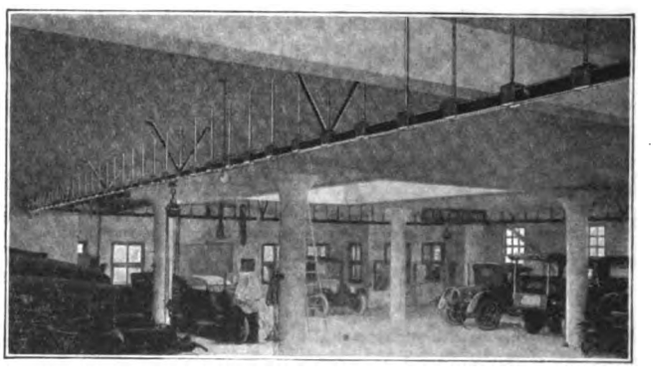
Write today to your jobber, or direct to

Gemco Manufacturing Co.
756 South Pierce Street
Milwaukee, Wis.



OVER-WAY TRADE MARK

Relieves Labor Shortage



Besides speeding up the work in your Garage, effecting safe handling of heavy loads, eliminating waste space, saving wear on floors and reducing cost of operation—

An "OveR-Way" Carrying System will enable you to lift and carry heavy units with *less labor.*

Made for large or small requirements.

Write for particulars.

Richards-Wilcox Manufacturing Co

SAN FRANCISCO LOS ANGELES NEW YORK CHICAGO — AURORA, ILLINOIS, U.S.A. — PHILADELPHIA MINNEAPOLIS BOSTON ST. LOUIS

Richards-Wilcox Canadian Co. Ltd. London, Ont.

"A hanger for any door that slides"



WIRE WHEELS

HOUK TYPE

for 150 makes of cars. Write for full information and prices on wire wheels for any make or model of car.

DEALERS!

Wire Wheels are *sellers!* Get particulars of wire wheel service and sales agent's propositions.

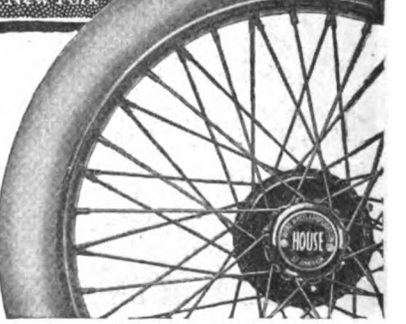
Ford distributors and accessory dealers should write for special service and sales proposition for HOUSE type Wire Wheels for *Ford* cars.

Wire Wheel Corporation of America
(Successors to Houk Mfg. Co.)
633 Eleventh Ave., at 57th St., New York

HOUSE TYPE

for Fords

List price for set of 5 wire wheels, 4 inner hubs, 4 hub caps, hub cap wrench, spoke nipple wrench, 1 hub dust cover for spare wheel, $50. White, black, red. Color optional.



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Here's the Best Known and Biggest Selling Auto Cleaner on the Market

ZIT is safe to use on any car—for it's composed of ingredients that cannot injure the finest finish. It *protects* such a finish from the drying-out processes of heat, sun and wind, and by restoring the elasticity of the varnish keeps it from checking and cracking.

ZIT THE AUTOMOBILE DRY WASH

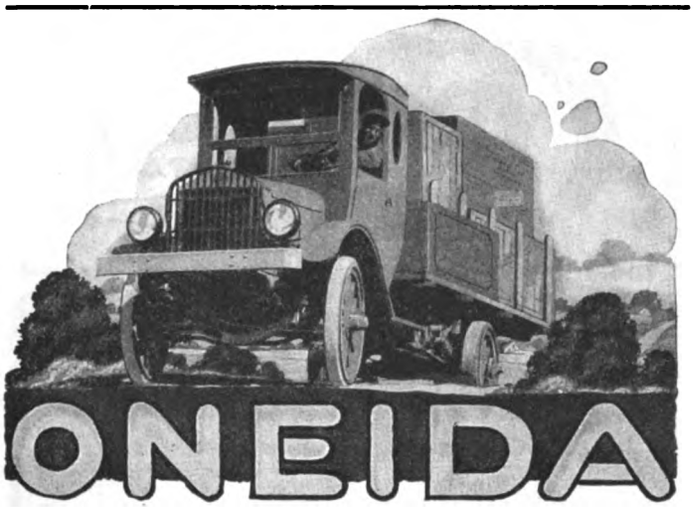
ZIT is also a splendid polish for furniture. Usually sold with the Westfield Junior Sprayer with which it is applied.

Introductory *Free* Offer

ZIT is a quick seller—a fast turnover—a heavy profit-maker. As a special inducement we offer a can *free* if you order 2 dozen *now*. Write that order *today*.



WESTFIELD CHEMICAL CO.
Westfield, Mass.



Well-known, long-proved, standard units combined with exclusive Oneida features have given the Oneida a degree of dependability and service seldom approached in the truck field.

It stands forth as one of America's master trucks.

Dealers: Write or wire. Your territory may still be open.

1—1½—2—3½ and 5 ton models.

All worm drive.

Prompt Deliveries!

ONEIDA MOTOR TRUCK CO.
Factories: Green Bay, Wis.

TRUCKS

TRADE DRIDEK MARK REG.

The Most Remarkable Top Material Yet Produced

There is one thing about DRIDEK—it is always just the same! Every piece, every yard, has that same perfect finish that will not scratch or blister.

When you want a fine, snappy top, or attractive, soft upholstery, buy a car that is trimmed with DRIDEK. Absolutely waterproof, and will not scratch or blister.

DRIDEK Tops turn out well, and are a source of continuous satisfaction to the car owner.

Send to Dept. D for samples and prices of DRIDEK.

L. J. MUTTY CO.
Boston, Mass.

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When the Road Ahead Is Hazy

and your sales efforts must be concentrated on accessories that insure rapid turnover, an accessory that will create its own market thru its self advertising features is THE one that you can exploit to the best advantage.

BUELL EXPLOSION WHISTLE

is the auto warning device the motoring world has been waiting for. Adopted by such manufacturers as Pierce-Arrow, White, Columbia, Selden, Mack, Little Giant, Diamond T, Sandow, Old Reliable and 20 others as standard or optional equipment. Can you ask for any better proof of merit?

Write immediately for our proposition. There's an opportunity for the Buell in your territory and it is your own fault if you don't cash in on it. Get busy to-day. Remember the Buell sells itself when shown.

Buell Manufacturing Co.
1608-10 Michigan Ave
CHICAGO

THE LUXURIOUS MOTOR CAR

UPHOLSTERY

CHASE

MOHAIR VELVETS

MADE BY SANFORD MILLS

Scores of Fast Color Patterns. Write for Samples

L. C. CHASE & CO., BOSTON

New York Detroit San Francisco Chicago

Defender Auto-Lock Supremacy

$4.00



1. Locks coil box and protects units by strong steel band. (Pat. pending..)
2. Grounds and short-circuits the entire electrical system. (Pat. pending.
3. Solid aluminum case locks over Ford switch without using screws. (Patent pending.)
4. Recognized as standard ignition lock by insurance underwriters laboratories, saves 15% on insurance.
5. Guaranteed for life of the car.

THEY SELL AND REPEAT!

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Canadian General Elec. Co., Ltd., Toronto, Ont.
Sole Canadian Distributor

Quickly Attached to All Four Cylinder Cars, Trucks and Tractors, the

"ALSOP-ALL-SPARK"



GIVES TWO PLUG IGNITION IF DESIRED

Saves Fuel and Spark Plugs
Gives More Speed and Power
Sparks Carbon Choked Plugs.
Causes Perfect Combustion.
Gives More Powerful Spark.
Eliminates Carbon & Vibration.

Retail price $6.00

Prevents running engine with a misfire and the delays from changing spark plugs on trips, BY SIMPLY TURNING A DIAL ON DASH. Dealers, write for a real sales proposition.

ALSOP TRIPLE IGNITION CORP., 1765 Broadway, New York

COLLIER TRUCKS

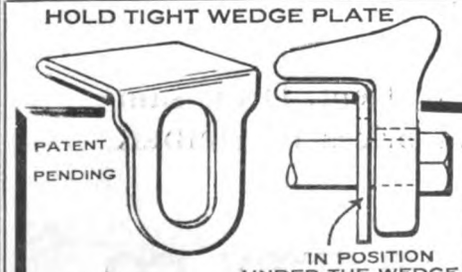
Includes Electric Starting and Lighting (Chassis Price) $985

Furnished regularly with four body types. Special bodies to order.

Built of All Truck Units. The Biggest ¼-ton Truck Value Obtainable.

THE COLLIER MOTOR TRUCK CO., BELLEVUE OHIO

HOLD TIGHT WEDGE PLATE



-STOPS-SQUEAKS

Hold-Tight Wedge Plates Are Guaranteed to Cure Loose and Squeaky Demountable Rims

Instantly stops annoying rim trouble caused by worn lugs, stretched and worn rims.

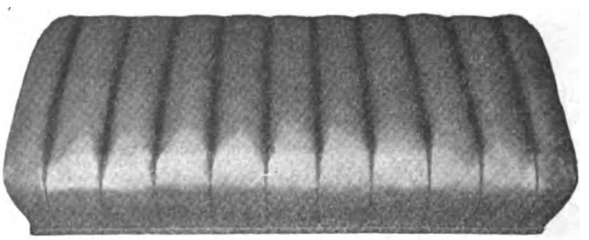
Car owners should apply Hold-Tight Wedge Plates at first sign of rim trouble. They save the tires, rims and wheels.

Permanent, inexpensive, easily applied. Every garage and accessory dealer should use and sell this trouble, time and money-saving device. Order trial box and ask for dealer's price. Send $1.00 for Box of 20.

Alliance Supply Mfg. Co., 153 East State St. ALLIANCE, OHIO

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The only cushion in America that eliminates all jolts and jars, and makes all roads seem like an asphalt pavement. Made for all model Fords, as well as every other make of car at proportionately low price. A postal card will bring full information; money-back proposition if we cannot improve riding qualities of any car 100%.

AMERICAN CUSHION SPRING CO. Kalamazoo, Mich.

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THE

Breco Converter

for

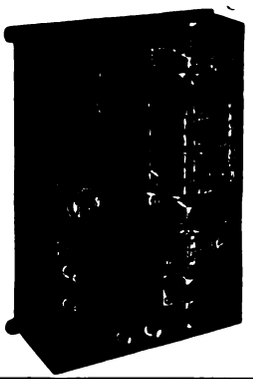
Charging batteries or for any other purpose where it is necessary to change A. C. to D. C. is *far superior.*

Highly Efficient, Economical, Rugged and Very Easy to Operate



The new, modern method, tested by years of every-day service. Endorsed by highest authorities.

PRICE $24.00 up SIZES—1 Battery up



Battery charging becomes a very simple, inexpensive and mighty profitable matter with the Breco Charger.

Write for Catalogue No. 20.

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206 Huron Street, Toledo, O., U. S. A.

SOLE LICENCEES

A Perfect Balanced Truck

SANFORD

Worm Drive

2½, 3½ and 5 Ton



5-Ton Sanford, stake rack body, owned by Joseph Caydiga, Iron Works, Brooklyn, N. Y.

The Sanford is built by men with years of experience in knowing what the public wants and expects in motor trucks.

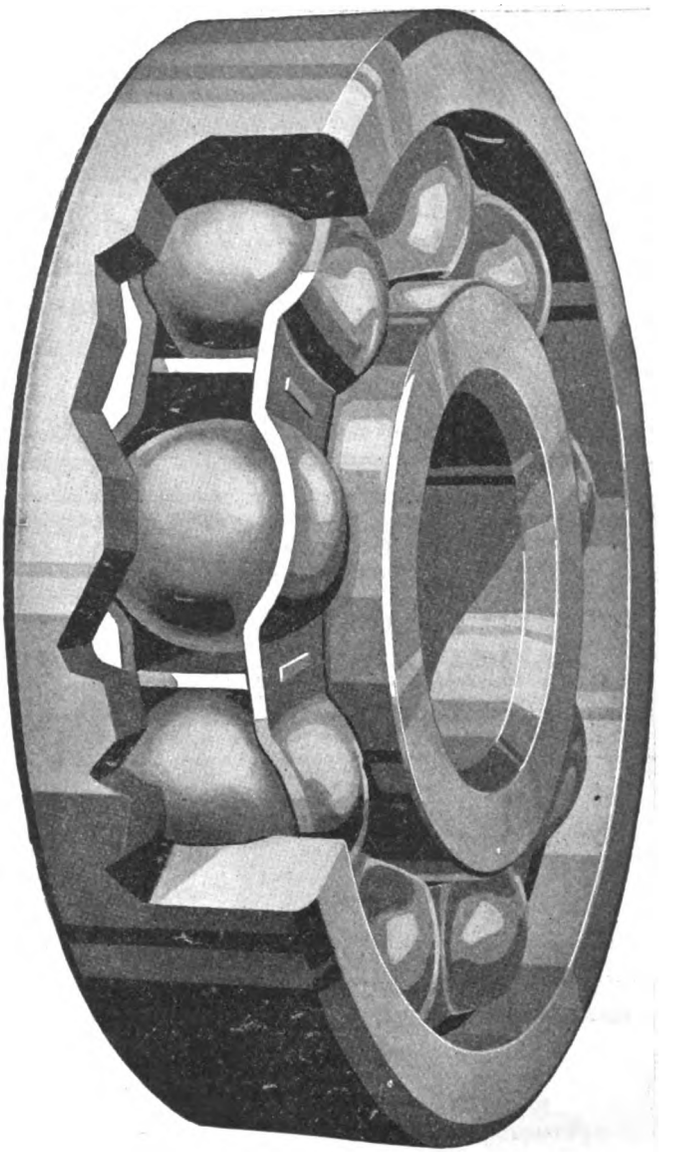
The Sanford is a thoroughly standardized truck built of materials best suited to stand the tremendous strains of modern business.

The Sanford stays sold and earns repeat orders because the makers recognize that service to be real must be willing, intelligent and prompt.

Immediate deliveries

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SYRACUSE, N. Y.



YOU get out of a bearing only what you put into it. We put in the best and most expensive bearing material known—chrome alloy steel.

The unseen qualities of the steel have fully as much to do with the unusual stamina displayed by these ball bearings as do the exclusive processes and inspection systems employed.

The New Departure Manufacturing Co.

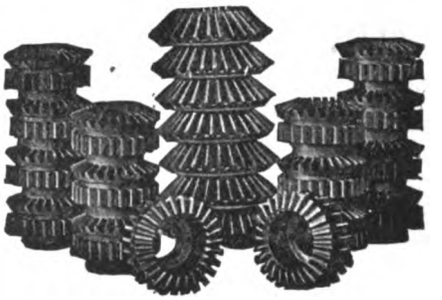
Bristol, Conn. 345A **Detroit, Mich.**

Conrad Patent Licensee

New Departure Ball Bearings

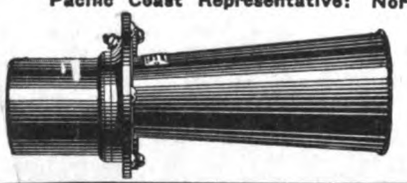
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Complete differentials, gears for transmissions, spur helical and bevel gears for any service
In any quantities—made to order
NEW PROCESS GEAR CORPORATION
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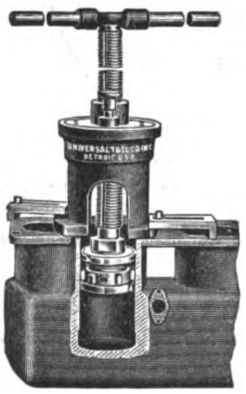
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VISIBLE PUMPS
Fast service, full measure and perfectly filtered gasoline, assure dealers the constant patronage of satisfied customers.
Write for the pump book
GUARANTEE LIQUID MEASURE CO.
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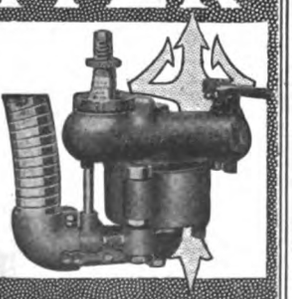
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Designed to rebore practically all makes of automobile, tractor, stationary, marine or aeroplane—either open or closed end cylinders, and will rebore a true, round, straight bore. Cutters adjustable from 2½ to 5/16 of an inch. For other new and important improvements—
Write for free illustrated literature with complete details, also give your jobber's name.
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PATENTED
Makes Tire Changing as Easy by Night as by Day
More than just a Spotlight.

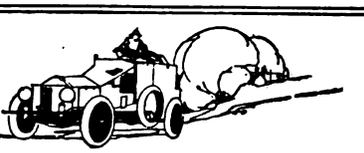


ANDERSON ELECTRIC SPECIALTY CO.
118-124 S. Clinton St. Chicago, Ill.

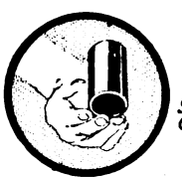
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"TRIDENT MODEL" FOR FORDS $10
IT'S A REVELATION
We want a few more live distributors. Wire or write.
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On armored cars, trucks, tanks, airplanes and ambulances, these "Genuine Oil-less Bushings" are doing their part.
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Light Delivery, 1, 2, 3½ and 5 Ton

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have earned thru automobile manufacturers' own tests a reputation for unquestioned superiority.

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Style A—for windshields of all large cars. Patented ball bearing joint—easily adjustable. Made also for Fords and small cars.

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They sell themselves.

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REPUBLIC

THE WORLD'S LARGEST BUILDERS OF MOTOR TRUCKS





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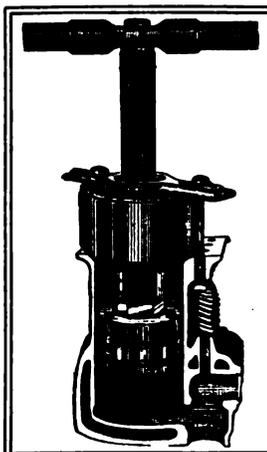
Gives a hotter, quicker spark, an easier start, more power and speed, smoother running, more miles to the gallon of gasoline, fewer short circuits, and freedom from all of those troubles that the regular timer develops.

DEALERS: DISCOUNT IN 50 LOTS 33⅓ %

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BY USING
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The most practical machine for any type of motor. SIMPLE, SPEEDY, ACCURATE and RELIABLE for hand or power. No shop complete without one. In daily use in all parts of U. S. A. and foreign countries.

Shortage of new cars make it indispensable in large and small shops. We furnish machines of varied capacities from 2½" up. Also special Ford Machine. For sale by leading jobbers. Oversize pistons for all makes of motors.

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Equally Convenient for Amusements, shopping or Business.

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Industrial cars—two and four-wheeled trucks of all kinds. Wheelbarrows.

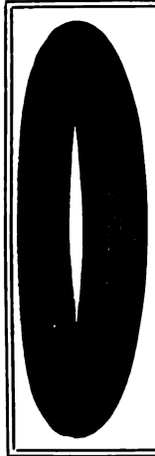
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Can you twist an ordinary gasoline hose into a dozen knots without damage? You can do that and worse to

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GASOLINE HOSE

—and not produce a single kink. It's got the stamina. You can't hurt it with chemicals, weather or rough handling. Be sure a TRIPLEXD is on your next pump outfit.

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Are Doubling Profits for Some Dealers
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Write and ask us how we do it. They are positively not seconds, but first-class fresh casings.

	Non-skid	Tubes		Non-skid	Tubes
30x3	$ 8.75	$1.90	32x4	$16.45	$3.10
30x3½	10.95	2.15	33x4	17.55	3.10
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Prices on Other Sizes in Proportion

Send us your order today, accompanied by cashier's draft on Chicago or New York, or money order. Large and small orders given immediate attention. These tires are sold without a guarantee. **Write today for territory. Prices will be advanced very shortly. Place your order now.**

This "Straight Side" Type is Made Also in Clincher Type

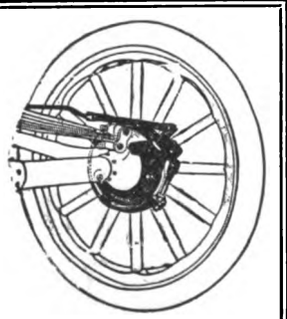
The Kimball

1469 Michigan Ave., Chicago

MR. DEALER

This morning's mail (April 8th) brought in repeat orders from Dealers for 109 sets PLA-SAFE Emergency Brakes.

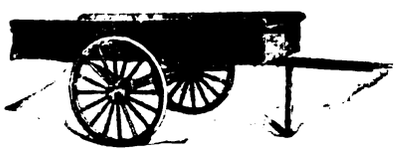
These dealers were not influenced to place these orders by clever salesmen or glaring advertisements; but have found that our Brake has merit and when a few sets are placed on owners' cars, that an instant demand results. Why not write us today for our Disc. and Big Selling Plan?



Retail price
$10.00 per Set

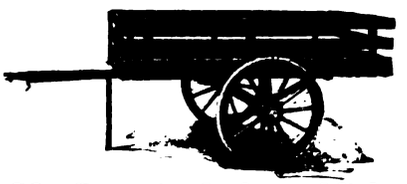
PLA-SAFE CO. Successors to L. A. Leathers Co. BROOKVILLE, PA.

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Built by men who are pioneers in the industry, of the best materials obtainable and sold at a price that is right.

Built in six different models, a size for every load and car. Write us for our dealer's proposition and complete information.



THE MILES MFG. CO., Dept. 10, Jackson, Mich.

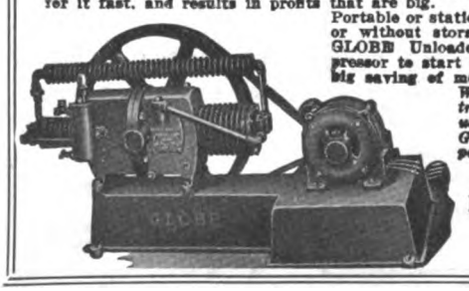


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Popularize Air Service for Profits

—because experience has proved to motorists that improved equipment insuring perfect air service indicates improved equipment and perfect service in other departments in the same garage. Your air compressor—if it is a GLOBE, that never fails—can bring in business that pays for it fast, and results in profits that are big.

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Made for Ford Cars by HILL-SMITH METAL GOODS CO., Boston—Backed by H-S Trade Mark of Quality.

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YOU PUT IT IN THE GASOLINE

$1 Can Treats 112 Gallons of Gasoline



Doc O'Kleen

Makes Carbon in the Motor Go to Work

Over 800 cans were sold in 6 weeks, without a line of advertising. NOW OUR BIG CAMPAIGN IS ON. ECON-O-KLEEN sales—and re-sales—pay. *They all come back at $1 a can.*

Write for complete details today. Get Doc O'Kleen's Prescription NOW.

Econ-O-Kleen Fuel Company
Thief River Falls, Minnesota

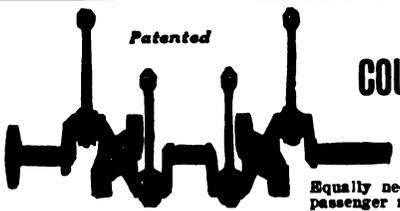
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SHOCK ABSORBER



"SOLID COMFORT"

No jolts! No jars! No vibration! Just *solid comfort* and longer car life.

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DUNN'S
COUNTERBALANCES
Make Ford Motors Run Smooth

Equally necessary on Racing Fords, passenger models, delivery cars and tractors. They add enough to life of the motor to pay for themselves quick. They positively give more speed, more power, greater economy. More than 1000 Fords are now equipped, and every user satisfied More than half of the orders received are repeat orders, coming from those who have tried them and know. Installed with a wrench.

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Greater Power
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Price $1 Each

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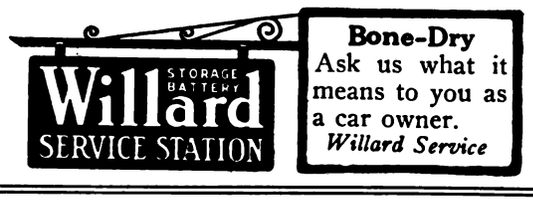
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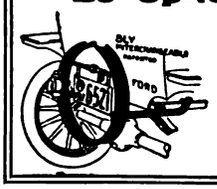
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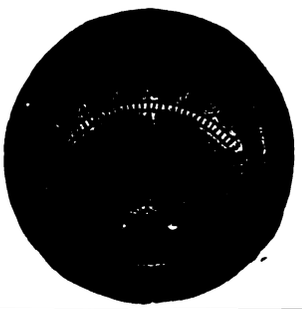
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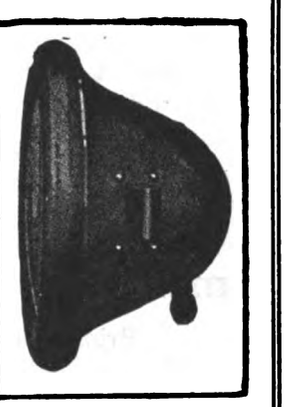
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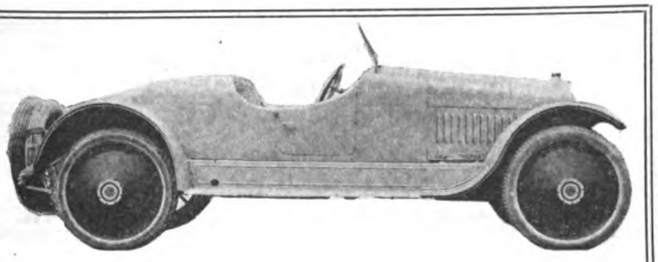
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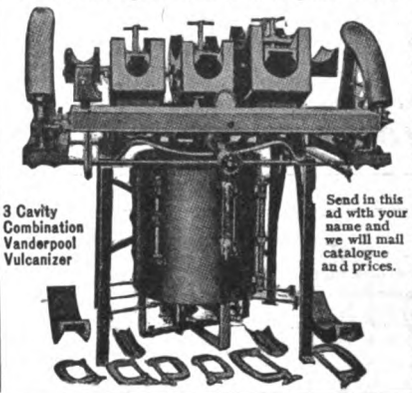


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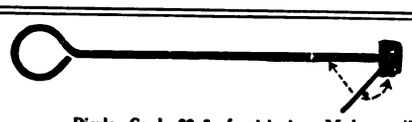
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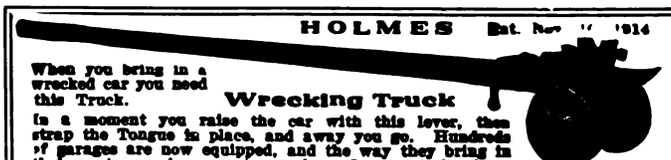
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GEARS SHAFTS BEARINGS

Tires and Tubes
A bargain for your
EVERY NEED

NOTICE: Price revision will be made on or about July 1st.

ORDER NOW

	Factory Blemished New Tires	New Tubes	Used Tires	Used Tubes	Double Tread Tires
28 x 3	$ 7.75	$1.85	$3.50	$1.25	$4.15
30 x 3	7.75	2.00	4.00	1.35	4.75
30 x 3½	9.85	2.45	4.90	1.45	5.80
32 x 3½	11.25	2.65	5.75	1.50	6.75
31 x 4	14.50	2.80	6.75	1.65	6.95
32 x 4	14.30	2.90	7.00	1.60	7.15
33 x 4	15.90	3.35	7.75	1.70	7.80
34 x 4	16.10	3.50	8.25	1.70	8.00
34 x 4½	20.65	3.80	8.50	1.75	9.65
35 x 4½	22.65	4.00	9.00	1.80	10.15
36 x 4½	22.95	3.50	9.25	1.85	10.40
37 x 5	26.10	4.00	11.00	2.10	11.50

All Tires 10% more for Non-Skid. Other sizes in proportion. No mileage guarantee at the above prices.

Open Evenings and Sundays

One dollar or deposit sufficient to cover express cost required with each order.

Shipments Made Promptly
Subject to Inspection

AUTO NEEDS COMPANY

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30 x 3	$3.50	33 x 4½	$9.00
30 x 3½	4.50	34 x 4½	7.75
32 x 3½	5.50	35 x 4½	8.00
31 x 4	6.00	36 x 4½	8.00
32 x 4	6.00	37 x 4½	8.50
33 x 4	7.00	35 x 5	10.00
34 x 4	7.00	36 x 5	10.00
35 x 4	7.50	37 x 5	10.00
36 x 4	7.50	38 x 5½	12.00

Goods shipped C.O.D., subject to examination upon receipt of 20 per cent of order. 10 per cent extra for Non Skid.

Cambria Tire Exchange

204 Columbus Ave., Boston, Mass.

SPECIAL BARGAINS
IN
Slightly Used Unguaranteed Tires

The Kind that will satisfy all Customers.

30 by 3	$ 4.00	34 by 4	$ 8.00
30 by 3½	5.00	34 by 4½	8.25
32 by 3½	6.00	35 by 4½	8.50
31 by 4	6.50	36 by 4½	8.75
32 by 4	7.00	37 by 4½	9.50
33 by 4	7.75	37 by 5	10.00

Send $1.00 deposit with each tire ordered. Balance C. O. D. subject to examination. Specify if Clincher, Q.D. or Straight Side.

AMERICAN TIRE & VULCANIZING CO.
2136 S. Michigan Ave., CHICAGO, ILL.
Phone: Calumet 5170.

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Tires. *Tires. Rebuilding and Repairing* *Tires. Rebuilding and Repairing.*

Special Bargains in New and Used Tires

HIGH GRADE SECONDS

Size		Size		Size		Size	
30x3	$ 7.25	31x4	$15.25	35x4	$17.50	36x4½	$23.00
30x3½	9.50	32x4	15.50	36x4	18.00	37x4½	24.50
32x3½	11.25	33x4	16.25	34x4½	21.50	35x5	26.00
34x3½	13.00	34x4	16.50	35x4½	22.50	37x5	27.50

37x4½ Ribbed Tread Cord Tires.....$40.00

Add 10% more for non-skid.

All goods shipped promptly. $1 deposit required with each tire ordered. Balance C. O. D., subject to examination, at the above prices without a guarantee. Specify whether new or used, clincher or straight side.

USED TIRES

Best values ever offered for the money

Size		Size	
30x3	$4.00	36x4	$8.00
30x3½	5.00	34x4½	8.25
32x3½	5.75	35x4½	8.50
31x4	6.25	36x4½	8.65
32x4	6.50	37x4½	9.00
33x4	7.50	35x5	9.00
34x4	7.50	37x5	10.00
35x4	7.75		

ROYAL TIRE AND SUPPLY COMPANY

1461 Michigan Avenue
CHICAGO, ILL.
Phone Calumet 2553

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Slightly Used and Factory Repaired Tires and Tubes—Quality Above All

A SATISFIED CUSTOMER IS OUR BIGGEST ASSET, THEREFORE WE MUST SATISFY YOU

Size	Tires	Tubes	Size	Tires	Tubes
30 x 3	$ 4.00	$1.35	35 x 4	$ 8.00	$1.75
30 x 3½	5.00	1.45	36 x 4	8.00	1.75
31 x 3½	5 25	1.50	34 x 4½	8.25	1.75
32 x 3½	5 50	1.50	35 x 4½	8.50	1.80
34 x 3½	6 00	1.60	36 x 4½	8.75	1.85
31 x 4	6.25	1.65	37 x 4½	9.25	1.90
32 x 4	7.00	1.60	35 x 5	9.50	2.00
33 x 4	7.75	1.70	36 x 5	9.50	2.00
34 x 4	7.75	1.70	37 x 5	10.00	2.20

Send $1.00 deposit with each tire ordered. Tires will be sent promptly C. O. D., with privilege of examination. Specify style of rim to avoid delay.
We will cheerfully make reasonable adjustments, but give no definite mileage guarantee.

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1463 S. Michigan Ave. Dept. M. CHICAGO, ILLINOIS

IMMEDIATE ATTENTION

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NEW
Gears, Shafts and Bearings for over 600 models at great saving.

DEMAND
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PROVE
their serviceable qualites (especialy adapted for hard country driving).

Note These Values

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30 x 3	4.75
30 x 3½	5.80
32 x 3½	6.75
31 x 4	6.95
32 x 4	7.45
33 x 4	7.80
34 x 4	8.00
34 x 4½	9.65
35 x 4½	10.15
36 x 4½	10.40
37 x 5	11.50

10% more for non-skid.

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Auto Necessities Company
219 S. Dearborn Street
Chicago Illinois

STANDARD MAKE USED TIRES

Size	Tires	Tubes	Size	Tires	Tubes
30x3	$ 4.50	$1.35	36x5	$ 9.00	$2.00
30x3½	5.50	1.50	34x4½	9.00	2.25
31x3½	6.00	1.60	35x4½	9.50	2.25
32x3½	6.50	1.75	36x4½	9.50	2.25
31x4	7.25	1.80	37x4½	10 50	2.40
32x4	7.50	1.85	35x5	11.00	2.50
33x4	7.75	1.90	36x5	11.50	2.50
34x4	8.00	1.95	37x5	12.00	2.75

No mileage guarantee at these prices.
$1.00 deposit required on each tire ordered.
Balance C.O.D. subject to examination.
Also full line of high grade seconds.
Send for prices.

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1336 Michigan Avenue, CHICAGO, ILLINOIS
Phones: Calumet 5212, Calumet 2199
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We can ship immediately from stock, at attractive prices, odd size pneumatic casings or tubes such as 31x4 straight side, 32x3 clincher, 34x3½, 35x4, 36x4, 36x3½, 37x4, 37x4½, 37x5½ in quick detachable or straight side. The above will be sold without a mileage guarantee. These are all brand new casings! Standard makes. No seconds!

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No mileage guarantee

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Our Special Light Alloy Pistons Will Give You More Power—More Speed.

We also do gear cutting of Spur and Bevel Gears.

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Our references should command your attention. Any Boston tire agency, Dunn's and Exchange Trust Co.
Mgrs. K. S. Brayton, George Vallely.

30 x 3	$3.30	34 x 4	$ 8.00
30 x 3½	4.50	34 x 4½	9.00
32 x 3½	4.85	35 x 4½	9.00
31 x 4	6.00	36 x 4½	9.00
32 x 4	6.00	35 x 5	12.00
33 x 4	7.00	37 x 5	10.00

NO MILEAGE GUARANTEE AT THESE PRICES.
NON-SKIDS 10% HIGHER.

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Quick Shipments.
Let us prove our ability on your next job.

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One Piece Double Step Cut
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These rings assure increased power and save gas—all sizes in stock.

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on special highest grade cylinder grinding machinery. No makeshift tools. Work handled by men with automobile factory experience. Large assortment of patterns for iron pistons. Complete stock of piston rings. Prompt service. Highest grade work only, fully guaranteed.

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Aluminite pistons will put six cylinder smoothness into a four cylinder motor; improve a six or eight, give more power and quicker getaway. For prices, state make, model and year. EXPERT MOTOR BUILDING. Piston pins, aluminite connecting rods and racing motors.

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Special discount to the trade.

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PISTONS and PISTON RINGS

Quality Supreme

Prices Right

All sizes in stock

Interesting proposition for agents

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Expert Repair Service

ON EVERY KNOWN
MAGNETO IGNITION SYSTEM
STARTING MOTOR
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All Repairs Promptly Executed

All orders for repair parts shipped the day orders are received.

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WE CAN FIX IT

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Bosch D4 or 6 $12, DU 4, $20.
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Here is a chance for a man with a lot of fine, general shop experience, knowledge and ability to become General Foreman of the Machine Department of the Automobile Section of our plant.

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Here is a chance to fulfill a patriotic duty, to get in a good lick at the Hun and to do your share in our big, new airplane plant where the working conditions are ideal and wages the highest.

Come on, you red-blooded men. Join the fighting workers who are making good airplane engines for our fighters in France and on the sea.

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$1.50 per pound in small quantities
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Get a Square Tube Radiator. 25% greater water capacity. Made for any car. New, guaranteed cores placed in old radiators. We also manufacture hoods, fenders, tanks and pans, and do guaranteed repair work. Prompt and satisfactory service.
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IN ALL SIZES FOR ALL CARS
We carry a complete stock
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Jobbers
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MOTOR WORLD
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Large Stock of New and Second-Hand Garage Equipment

Lathes	Gear Cutters	Milling Machines
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Advertisers in This Section Have Facilities at Their Disposal to Take on Additional Work on Contracts. Truck Specialties of All Kinds Manufactured on Contract Basis. Special Machinery, Press Work, Truck Machine Work, Foundry Work, Automatic Screw Machine Work.

IF your manufacturing requirements cannot be handled by firms now advertising, we should appreciate the opportunity of locating a firm that can render such special service as your business may demand. Our investigation of the contract situation as it now stands places us in a position in which we can be of valuable service to the manufacturers of the automobile industry. If interested please communicate with the Contract Work Department, Motor World, 239 West 39th St., New York City.

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Wood Patterns. Metal Patterns.
Automobile Work a Specialty.
Models and Experimental Work.
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Near Spring Street, NEW YORK.
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Your Patented Automobile Accessory Manufactured

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There is no charge for this service.

Send blueprints, specifications and full information as to the kind of material and manufacturing equipment necessary to manufacture the article in question.

It is also important that you state whether you are in a position to finance the proposition, or if it is to be manufactured on a royalty basis.

For co-operation along the above lines, address

MOTOR WORLD

Service Department, Contract Work, 239 WEST 39th STREET, NEW YORK CITY

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Per gallon is an important point about any car . .

HOW MUCH WORK

Per tool is important to know about equipment .

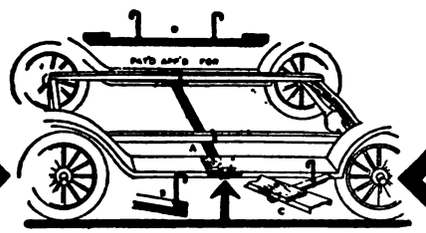
"Morse" Drills are Good Tools



The men who use them know.

MORSE TWIST DRILL & MCH. CO.

NEW BEDFORD, MASS.



"Rides Like a Parlor Car"—

That's what one man said about his Ford after it had been equipped with a Dow Ford Fender Brace. That's the way *thousands* feel whose Fords are equipped, *because*—the

DOW FORD FENDER BRACE

absorbs the jolts and jerks and jars, prevents rattle, broken springs and uneven loading (a 280-pound man can stand on the running board without sagging it or tipping the car), prevents fenders from breaking and pulling loose, improves the appearance of your Ford, makes it last longer and ride 100 *per cent better.* Its

A Necessity

if you are going to get the most out of your Ford in pleasure and service. Made of strong angle steel. Simple as A B C. Can be attached in five minutes No drilling. No holes. Fits any Ford. *Price* $3.00.

Dealers: We are busy supplying dealers in practically every part of the country. If we are not supplying you, send in your order *now* so that you will be taken care of. We have an interesting dealer proposition.

DOW WIRE & IRON WORKS
INCORPORATED
LOUISVILLE, KENTUCKY

DOW LOUISVILLE

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CHILD'S PLAY WITH A REAL WRENCH

TIRE AND RIM WRENCHES

No one likes to change a tire or rim at any time and with poor tools it is often a hardship, especially on the road.

Owners and repairers have found the ordinary and adjustable wrench most unsatisfactory and are demanding a tool that will permit the change to be easily and quickly made.

This demand is fully met by the trademarked, guaranteed **Walden-Worcester Brace Socket Wrench**—the only all steel brace wrench made. It has swivel handles of pressed steel and the wrench is nickel finish. There are no loose parts and the socket will not twist or shear off.

One wrench in any car will fit all nuts on the rim as they are uniform, but there is just the right size **Walden-Worcester Wrench** for any make of rim. List price 90 cents each.

This is an extremely fast selling line of great utility. **If you do not stock them write to-day for catalog No. 25 and discounts.**

WALDEN-WORCESTER INC.
WALDEN WORCESTER WRENCHES
WORCESTER, MASS., U.S.A.

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Confidence—and What It Means to the Dealer

INDIANA
TIRES & TUBES

If every dealer would refuse to handle a certain line of goods until he had absolute confidence in that line most of his troubles would be over. For, when a dealer's confidence is gained, it means that the product has distinct merits. A dealer seldom, if ever, makes a mistake in giving his **entire** and **unqualified** confidence to a product.

With confidence backing him up the dealer will make a big success with the product. His sales will mount up because he can back each individual sale with a **personal** guarantee which is the deciding factor in the mind of the prospective purchaser.

Indiana Tires and Tubes are the kind of products that the dealer respects. Every Indiana sale is backed by the dealer's **personal** guarantee. By experience the dealer learns that Indiana Tires and Tubes give the kind of satisfaction that brings customers back with repeat orders.

Write for our dealer proposition and the details explaining why every Indiana dealer has the utmost confidence in Indiana Tires and Tubes.

INDIANA RUBBER & INSULATED WIRE CO.

Western Representative:
A. J. MUSSELMAN
Halsted St. and Washington Blvd.
CHICAGO

JONESBORO, INDIANA

Eastern Representative:
GEORGE R. HALL
WEST HARTFORD, CONN.

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1500 new dealers make rush for Globe Tire Selling Franchise

THE jump in Globe Tire sales is the biggest piece of news in automobile circles. We're not surprised. We knew that nothing could block the complete success of the longest-mileage hand-made wrapped tread automobile tire.

Take a good look at these figures. They're important.

Our production and sales of Globe Tires jumped 101.9 per cent in a year. A tremendous gain at this period of the tire industry.

In Trenton, New Jersey, where our factory is located, our distributors, the Para Company, sold $125,000 worth of Globe Tires in the past year. They did it right under the noses of nearly a dozen other Trenton tire factories.

New York City sales jumped over 200 per cent in a year.

Kentucky sales jumped more than 500 per cent.

Our distributor in Ogden, Utah, reports an enormous increase of 400 per cent in his sales since last March.

A year ago, we hadn't done five cents worth of business in the states of Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Mississippi, or Alabama. Today, we have most of this territory well covered with ambitious dealers doing a rushing Globe Tire business.

Globe Tire and Tube purchasers are sure repeaters. Globe Tires are the longest-mileage tires that can possibly be made.

Write or wire us today if you wish to build a permanently profitable business on Globe Tires. Exclusive, adequate dealer territory available for properly qualified merchants in many localities, especially in Iowa. Distributors' territories available in Denver, Michigan, Nebraska, Mississippi, and Alabama.

GLOBE RUBBER TIRE MANUFACTURING CO.

Executive Office, 1851 Broadway, New York City *Factory,* Trenton, New Jersey, U. S. A.

Branches in New York, Boston, Chicago, and Philadelphia

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DENBY MOTOR TRUCKS

THE ideals of the builder are inevitably reflected in his product. For us there is but one ideal—the highest; there is no detail too small to be measured by it, and no effort too great to attain it.

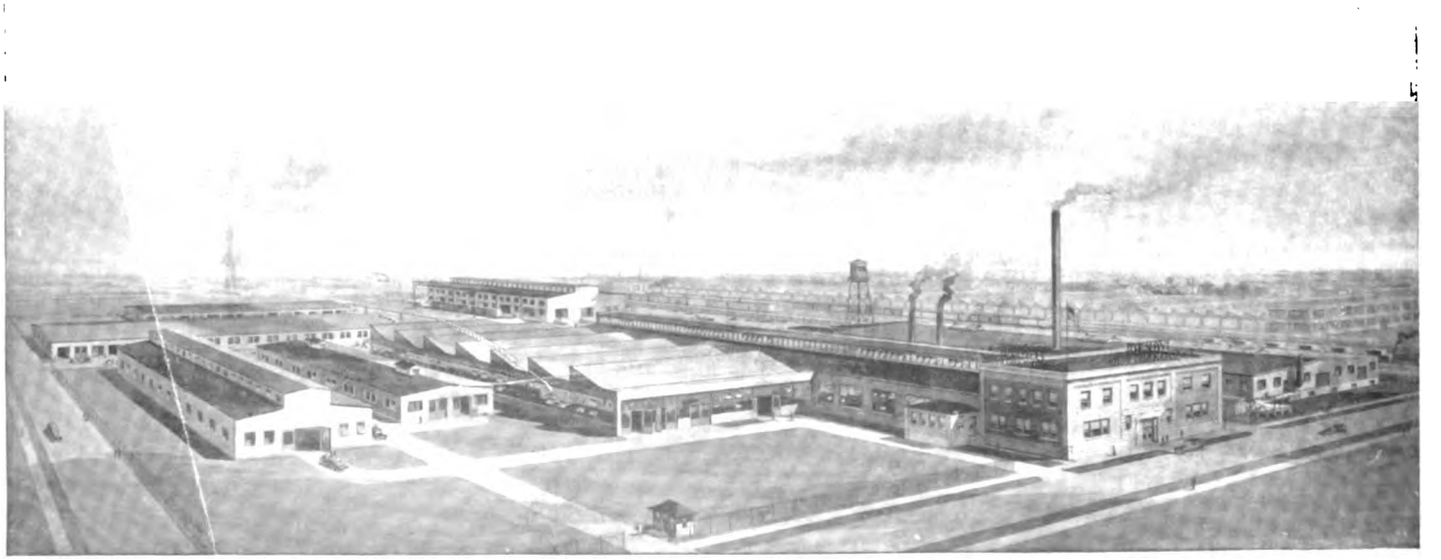
Rigid adherence to this policy, laid down at the formation of the company, coupled with thorough co-operation with Denby dealers and Denby users, has built a world-wide demand for Denby trucks that has forced a consistent, constant enlargement of the Denby Plant.

Denby trucks are furnished in capacities of 1 ton to 5 tons.

Recent additions have more than doubled the capacity, and further new buildings are to be added as fast as possible, to keep pace with the demand and supply Denby dealers with the trucks to meet their needs.

Denby Motor Truck Company

Detroit **Michigan**



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